

NETWORK WORLD

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Protecting the net: User-led effort pays off for N.Y. City

Carriers cooperating on backup under landmark mutual aid plan that may serve as a model for U.S.

By Anita Taff
and Bob Wallace
Network World Staff

There isn't much that's gotten more reliable over time in New York City.

But the city's public network — a network at grave risk according to a major study released in 1990 — now appears less vulnerable to prolonged outages, and the carriers serving the city seem better prepared to handle catastrophes.

Chalk that up to an unprecedented lobbying effort by users and city officials who earlier this year pressured local and long-haul carriers into signing the New York City Metropolitan Region Mutual Aid and Restoration agreement — a first-of-its-kind pact in the U.S. that calls for carriers to back one another up in the event of a major outage.

Since the mutual aid group was formed, members have established contacts and outlined procedures to help in

jointly responding to outages. In addition, they've exchanged network information and participated in mock disaster drills.

Only a real disaster will tell, but all parties involved believe carriers now will be able to respond more quickly to major failures — such as loss of a high-capacity trunk — and minimize disruption to user networks.

But while the city's users may be able to rest somewhat easier, observers say there is more that could be done to safeguard the public network in New York and other cities around the country.

For example, the New York plan should be expanded to specify how users will be informed about the nature and resolution of problems, and users should be given a bigger role in the disaster recovery simulations conducted by the mutual aid group.

In addition, the group needs to build on its theoretical knowledge by conducting load-sharing tests under conditions

NETWORK WORLD'S



READER ADVOCACY FORCE

Simulating a disaster

Under the Mutual Aid and Restoration plan, carriers serving the Big Apple have undertaken 2 rounds of outage drills.

Round 1: April

In written responses to 3 scenarios, carriers outline how they could aid a stricken carrier and agree to develop a checklist of aid requirements to be used in the future.

Round 2: July

Carriers go on-line in a teleconference to respond to "live" outage scenarios. In under 90 minutes, they could determine who would help the affected carriers and how.



GRAPHIC BY SUSAN J. CHAMPENY

simulating an actual outage.

Although there is room for improvement in the New York agreement, in its current form, it could serve as a model for a national plan. The risk of devastating outages has increased along with carriers' reliance on very high capacity fiber circuits and advanced software systems that control the national net. And while it seems unlikely to do so for now, the Federal Communications Commission should work with carriers to establish

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DOD plots course to shift net authority

Pentagon will float plan to centralize Air Force, Army and Navy net design, purchase decisions.

By Ellen Messmer
Washington Correspondent

WASHINGTON, D.C. — The U.S. Department of Defense intends to strip the U.S. Army, Navy and Air Force of their control over network design and purchases and transfer authority to the Defense Information Systems Agency (DISA).

The Pentagon's reorganization plan — contained in an internal document called the Defense Management Report Decision (DMRD) No. 918 — would give DISA central control over computers, software, and local- and wide-area networks used by the three branches of the military. The plan, which is predicted to save \$13 billion by 1999, would also result in the consolidation of 1,700 data processing centers into 20 "megacenters," the loss of an estimated 15,000 high-tech jobs in the military by 1999 and more than 100,000 job transfers (see graphic, page 50).

Scheduled to take effect Oct. 1, the plan is intended to help the Defense Department move more

quickly to open systems while simultaneously shaving billions from its budget.

The Pentagon declined to discuss DMRD No. 918 in depth, pending the restructuring announcement, which a Defense spokeswoman said should come

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FEATURES



■ Buyer's Guide examines net integration issues of peer NOSes. Page 33.

CA, Novell team on LAN management

By Caryn Gillooly
Senior Editor

NEW ORLEANS — Computer Associates International, Inc. (CA) and Novell, Inc. this week are expected to announce an alliance under which the two companies will develop a NetWare management system based on CA's system management wares.

Likely to be called CA-Unixcenter for NetWare, the new product will be a set of NetWare Loadable Modules (NLM) that provide NetWare administrators with an integrated set of management features ranging from performance monitoring to security control, according to sources close to the companies.

CA currently provides similar functions to IBM mainframe and

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Developers: Steep license fees will slow APPN rollout

By Michael Cooney
Senior Editor

RESEARCH TRIANGLE PARK, N.C. — Squabbles over licensing fees and patents may slow the rollout of third-party products conforming to IBM's APPN strategy, according to attendees of the first IBM APPC/APPN developers conference, which was held here last week.

Some of the 100 developers from 40 companies who attended the conference said there was growing sentiment that the Advanced Peer-to-Peer Networking network node licensing fee was too high. Developers also expressed resentment that APPN beta-testers 3Com Corp. and Network Equipment Technologies,

Inc. would have the code a full year before anyone else.

IBM is reportedly charging \$400,000 plus royalties for APPN's network node specification. For that sum, vendors receive 110,000 lines of C language code, a developers tool kit needed to build network nodes and service help once the product is developed.

The code and developers kit are expected to be available in the first quarter of 1993.

IBM is counting on third-party support to grow APPN into an industry-standard networking architecture, and anything short of complete cooperation among vendors could be a disaster.

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NETLINE



AT&T APPEALS GSA decision that prohibits the carrier from offering T-3 service under FTS 2000. Page 4.

NSF CONSIDERS public comments as it attempts to iron out NSFNET design plans. Page 4.

HP TEAMS WITH LOTUS in an effort to port Lotus applications to Unix workstations. Page 6.

ODS ATTEMPTS to gain ground with products based on IEEE 802.3 10Base-FL. Page 6.

HUGHES BOOSTS ProLINC connectivity software by adding support for more protocols. Page 7.

LANNET HERALDS its new multimedia network strategy, featuring video capabilities. Page 47.

Phoenix software will let NetView manage DEC nets

Company will also license software that lets other vendors forge direct LU 6.2-based NetView links.

By Jim Duffy
Senior Editor

FOUNTAIN HILLS, Ariz. — Users will soon have more than one way to manage mixed IBM-Digital Equipment Corp. networks.

Phoenix Network Technologies, Inc. last week unveiled software, called Six2Dmcc, that lets users manage DECnet-based systems from an IBM NetView console. Six2Dmcc is an application built on Phoenix's Six2View software, also announced last week, which provides a direct NetView connection for non-IBM devices, obviating the need for a functionally limited service

point, such as NetView/PC.

The Phoenix software uses an IBM Network Management Vector Transport-like protocol running over IBM LU 6.2 sessions to exchange alarm and alert information and to issue commands. Next month, DEC and Systems Center, Inc. are expected to announce a similar product that lets users manage mixed IBM and DEC environments from their choice of DEC, IBM or Systems Center management systems by using the Common Management Information Protocol (CMIP) over LU 6.2 ("DEC, Systems Center to de-

(continued on page 47)

User groups cry foul over AT&T multidrop rate hike

Private-line rate element would increase 100%.

By Bob Wallace
Senior Editor

WASHINGTON, D.C. — Three large user associations last week rose in opposition to a proposed rate hike for AT&T multidrop private lines that could wind up costing firms several hundred thousand dollars more per month.

In a proposed overhaul of its private-line pricing strategy filed two weeks ago, AT&T included plans to increase the monthly per-drop charge for analog access to multidrop fractional T-1 links from \$15 to \$30 while adding a new \$15 per-drop charge for multidrop Dataphone Digital

Service links.

The changes would send costs soaring for petroleum firms, airlines, retail chains and banks — some of the biggest users of multidrop private lines.

"This is a real hard kick in the pants from AT&T," said Douglas Jarrett, an attorney with Keller and Heckman, a Washington, D.C. law firm that represents the American Petroleum Institute (API), which comprises 200 oil and gas companies. "API member companies are not going to take this lying down."

Neither will members of two

(continued on page 50)

Network General extends DSS capabilities to Unix

By Caryn Gillooly
Senior Editor

MENLO PARK, Calif. — Network General Corp. last week extended its sniffing capabilities to the Unix world with the introduction of a Unix version of its Distributed Sniffer System (DSS) console software.

With the release of SniffMaster for X (SM/X), users will now be able to obtain DSS information from the same Unix workstation supporting Sun Microsystems, Inc.'s SunNet Manager or any other Unix-based network management product.

With the DSS distributed net-

work management system, Sniffer Servers are installed on each network segment to collect information and forward it back to a central SniffMaster Console.

Before this release, the SniffMaster Console software could only run on a DOS-based machine, meaning many customers had DOS machines running SniffMaster sitting next to their Unix-based net management wares. This software release will run on any X Window-based workstation, enabling those customers to get rid of the extra DOS machine.

"Being able to run on Unix was

(continued on page 49)

Briefs

Motorola EMBARCs on partnerships. Motorola, Inc. last week announced agreements with GE Information Services and the IBM Information Network that will let users of either company's value-added network send messages to and from Motorola's new wireless electronic mail net, dubbed Electronic Mail Broadcast to A Roaming Computer (EMBARC). The agreements, which are meant to tie mobile users into the two terrestrial nets, are effective immediately.

Hunter bids Big Blue adieu. John Hunter, IBM's director of architecture and telecommunications and one of the early architects of Systems Network Architecture, resigned last week to take a job as vice-president of development at systems management vendor Landmark Systems Corp. in Vienna, Va. Rick McGee, formerly director of IBM's networking systems architecture, will assume Hunter's post. Hunter was with IBM for 24 years, holding positions ranging from product manager for MVS/XA development to manager of IBM's network management products. He served in his most recent position since 1987.

AT&T welcomes TAT-10. AT&T last week announced it has begun offering service over TAT-10, a 4,500-mile transatlantic fiber-optic cable linking the U.S. with Germany and the Netherlands. TAT-10, with its capacity of 80,000 simultaneous telephone calls, will complement the existing TAT-8 and TAT-9 fiber cables, offering additional capacity and route diversity between the U.S. and Europe, AT&T said.

MFS hooks up with Bell Atlantic. Metropolitan Fiber Systems, Inc. (MFS) last week announced an interconnection agreement with Bell Atlantic Corp. for intrastate special access and local private-line services. Under the agreement, MFS will be allowed to physically or virtually collocate its gear in Bell Atlantic central offices, enabling more customers to use MFS for local service. MFS plans to have the service available in the fourth quarter.

BellSouth concludes SONET trial. BellSouth Corp. last week said it has completed a trial of an AT&T Network Systems Synchronous Optical Network (SONET) transmission system that operates at 2.5G bit/sec. Billed as the first step in SONET deployment throughout the BellSouth region, the SONET system links Grenada and Tupelo, Miss., a primary network route for the carrier.

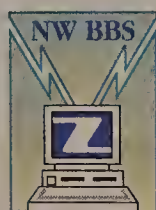
X/Open backs DCE. X/Open Company, Ltd. last week said it will include the Open Software Foundation, Inc.'s Distributed Computing Environment (DCE) specifications in the X/Open Common Applications Environment (CAE), a set of standards for application portability and interoperability. DCE will serve as the CAE component for application interoperability in client/server environments and will be among the criteria vendors have to meet in order to receive an X/Open Portability Guide brand, X/Open said.

Brooks bill likely to die. Rep. Jack Brooks' (D-Texas) bill to impose restrictions on the regional Bell holding companies in information services and other areas appears doomed. The House leadership has denied a request to refer the bill to the House Energy and Commerce Committee ("Politics as usual" stalling House Antitrust Reform Act," *NW*, July 20) but will not allow it to come to the floor for a full vote before Sept. 25. The House is set to adjourn Oct. 2, leaving little chance the bill will be acted on this year.

CONTACTS

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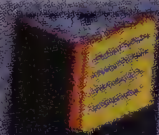
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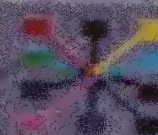
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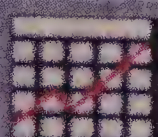
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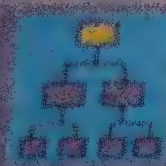
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Lotus Notes

AT&T takes the offensive in FTS 2000 contract battle

Goes to court after appeals board shoots down addition of T-3 service to government contract.

By Anita Taff
Washington Bureau Chief

WASHINGTON, D.C. — AT&T went to court last week after a government appeals board ruled that the carrier has improperly added T-3 service to its FTS 2000 contract, raising questions about the carrier's ability to add other new services, such as frame relay, to the network deal.

Earlier this month, the General Services Administration Board of Contract Appeals, which reviews modifications to the Federal Telecommunications System 2000 contract, upheld a protest from WilTel. That carrier had argued that T-3 service is outside the scope of the FTS 2000 contract and should have been opened up for competitive bids.

AT&T officials expressed outrage over WilTel's protest, which was supported by MCI Communications Corp., one of the losing FTS 2000 bidders.

"AT&T is embroiled in a battle that threatens the very heart, soul and future of federal contracting," said Richard Lombardi, vice-president of AT&T Business Communications Services-Federal Systems. "Every federal agency, procurement and contractor will be affected by the outcome of these reckless assaults," he added, referring to MCI's protests since FTS 2000 was awarded.

Despite AT&T's stinging criticism, David Burgett, counsel for WilTel, said he believes the WilTel protest will ultimately benefit

users. He said that the price AT&T would charge for T-3 in a competitive bid situation would probably be lower than what the carrier would charge under a closed contract.

The board's ruling has raised numerous questions about how FTS 2000 users will get T-3 service and how easy it will be for government users to purchase other new services such as frame

"AT&T is embroiled in a battle that threatens the very future of federal contracting."



relay or Switched Multimegabit Data Service, neither of which is specifically mentioned in the original FTS 2000 contract.

Although carriers are allowed to enhance existing services under the contract, the Board of Appeals ruled that T-3 cannot reasonably be viewed as an enhancement of T-1 service, which is specified in FTS 2000. In order to add T-3, bids would have to be taken from all competitors, not just the existing providers — AT&T and Sprint Corp.

The Department of Energy's (DOE) Sandia National Laborato-

ries in Livermore, Calif., has already installed T-3 service to get real-time access to DOE supercomputers in Albuquerque, N.M. With the high bandwidth access, the DOE was able to consolidate its supercomputer operations by moving equipment from Livermore to Albuquerque.

An AT&T spokeswoman said the GSA, which oversees the FTS 2000 contract, has not asked the carrier to disconnect the T-3 facilities at Sandia. She added that AT&T would try to win a stay from the court in order to prevent a service disruption there.

"It continues to be business as usual for that service at that particular installation, and I believe that we are continuing our work with NASA and the EPA, the two other customers that are interested in T-3 service on FTS 2000," the spokeswoman said.

AT&T's opponents claim there is little hope of the carrier's appeal succeeding. Burgett said he expects that AT&T eventually will have to terminate the T-3 services already installed as part of FTS 2000 and that new services will have to be opened up for competitive bid.

"In view of the [board's] opinion, the GSA needs to rethink its approach and use a competitive strategy for adding [new services such as frame relay]," he said.

According to Jim Payne, director of FTS 2000 strategic planning at Sprint, not only does the decision against AT&T keep his firm from adding T-3 service to the contract, it also could delay introduction of other new services such as frame relay.

"In the time it takes to finish the appeal, I'm afraid other modifications [to add new services] will have to stand still," he said. ☐

NSF pressed to reexamine design of next NSFNET

By Ellen Messmer
Washington Correspondent

WASHINGTON, D.C. — Internet users and the telecommunications industry are urging the National Science Foundation (NSF) to rethink the design of the next-generation NSF Network (NSFNET), which serves as the Internet backbone.

Public comments submitted to NSF show that many believe Asynchronous Transfer Mode (ATM) should be deployed at the proposed Network Access Points (NAP), instead of Fiber Distributed Data Interface. But others attacked the idea of NAPs altogether, asserting they will interfere in private sector development of data services and make using the

Internet more expensive.

The contract for the current NSFNET T-3 backbone, supplied by Advanced Network & Services, Inc. (ANS), will soon expire, and NSF has issued a draft solicitation asking for comments on it.

Splitting the work

NSF is proposing a new network design calling for one contractor to provide a 155M bit/sec backbone and a second vendor to be the "Routing Authority/NAP Manager."

The separation of the routing and backbone functions is intended to satisfy the government's Acceptable Use Policy, under which the federal sector may fund networks that carry research and

education data but not commercial data.

Under the NSF proposal, T-1 networks connected to the same NAPs will be able to exchange commercial traffic, while only research and education traffic would travel across the subsidized 155M bit/sec backbone.

However, NSF said it may let the new 155M bit/sec backbone provider carry traffic "beyond that specified by NSF." In its comments, the Defense Information Systems Agency (DISA) called the NSF decision in this regard "confusing and possibly contradictory."

In jointly filed comments, ANS, IBM and MCI Communications Corp. told NSF they want the agency to make it clear that NSF will indeed allow the new backbone provider to carry additional traffic since the expected \$10 million per year government

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PacBell details upcoming switched 384K, T-1 test

But cost will decide if new services to be offered.

By Bob Brown
Senior Editor

SAN RAMON, Calif. — Pacific Bell will trial switched 384K and 1.536M bit/sec services supporting videoconferencing, imaging and private-line backup early next year, the company told *Network World* last week.

But whether or not the switched fractional T-1 technology trial will result in new services has yet to be decided, said Scott Akrie, a senior engineer for Pacific Bell's network service organization.

"Our primary goal is to evaluate the technology and determine the exact cost of the service to us," Akrie said. "We don't know how cost-effective it would be to offer a switched 384K or 1.544M bit/sec service." The trial is set to run from January to June.

To date, only AT&T offers switched 384K and T-1 services — which are based on the CCITT Integrated Services Digital Network H.0 and H.11 standards — although other long-haul carriers have stated their intentions to follow suit.

The only other local exchange carrier that has committed to a similar trial is Nynex Corp., which in June said it will launch a six-month trial of Nx64K bit/sec services in November. The service, provided via a Northern Telecom, Inc. switch, will enable Nynex to offer switched services in multiples of 64K bit/sec channels using ISDN Primary Rate Interface (PRI) access lines.

Pacific Bell is not testing Nx64K bit/sec services. But since both the Pacific Bell and Nynex trials conform to the Bell Communications Research technical requirement for switched fractional T-1, the two carriers' offerings could be compatible at 384K

bit/sec and T-1 speeds, Akrie said.

Many aspects of the Pacific Bell trial have yet to be worked out, including which vendors will participate and whether the test will involve customer sites. Initially, at least, the technology will be tested over Pacific Bell's internal net to link sites in the San Francisco Bay area and Los Angeles.

This much is clear: The test will involve the use of a single AT&T central office switch accessed using ISDN PRI lines.

The offering of a high-speed switched digital service that is compatible with long-haul services would be well suited for Pacific Bell's customer base, much of which deals with businesses across the Pacific Rim, Akrie said.

Acknowledging that such services obviate the need for inverse multiplexing at the customer site, Peter Moulds, director of Western region sales for inverse mux maker Ascend Communications, Inc., said he expects it will take awhile for carriers to deploy high-speed switched services on a widespread basis.

"With the advent of H.0 and H.11 services, the carriers will start to offer some of the capabilities found in inverse muxes," Moulds said. "However, carrier services like this typically take a number of years to roll out, and users might find that they don't have end-to-end compatibility between different carriers using different switches."

For these reasons, Moulds said, lower speed switched services matched with inverse muxes will coexist for many years with higher speed switched services matched with various types of ISDN-compatible customer premises equipment. ☐

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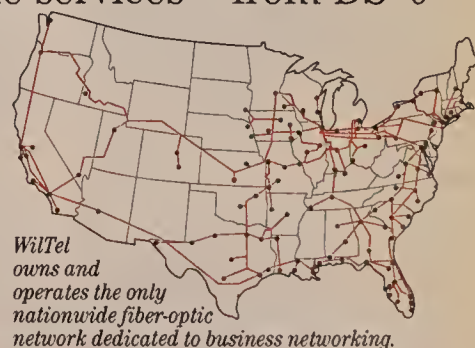
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WITTEL
TURNS UP TECHNOLOGY

HP to offer Lotus apps suite on Unix

By Jim Duffy
Senior Editor

PALO ALTO, Calif. — Hewlett-Packard Co. and Lotus Development Corp. last week announced a joint development and marketing agreement that will bring popular PC-based networking applications to more powerful Unix-based workstations.

HP and Lotus said they will port a suite of Lotus work group applications, including Lotus Notes and cc:Mail, to HP's Reduced Instruction Set Computing-based workstations and servers. Also, HP will tie cc:Mail clients into its OpenMail messaging backbone using the Vendor Independent Messaging (VIM) interface, marking the first time HP has endorsed VIM.

If all goes according to schedule, HP will be the first vendor to offer all four of those Lotus applications on Unix workstations.

"Unix dominates the server part of client/server computing" in the Fortune 500, said David Rome, general manager of Lotus' Unix business unit. "You can't go into the Fortune 500 unless you can connect everybody. Unix is very prevalent, and you can't exclude it."

Under the nonexclusive agreement, HP and Lotus will port Lotus' Notes, cc:Mail, AmiPro and Freelance Graphics applications to HP Apollo 9000 Series 700 workstations and 800 servers. The HP systems run HP-UX, the firm's version of Unix, while the Lotus applications run on DOS, OS/2 and Windows machines.

Notes is groupware that lets users define logical work groups that can communicate and share information across geographic and organizational boundaries. CC:Mail is a local-area network-based electronic mail system that connects work groups to private and public E-mail systems and facsimile machines. There are more than two million cc:Mail users worldwide, Lotus said.

AmiPro is a word processing application, while Freelance Graphics is software that allows users to prepare graphical presentations with data, drawings and charts.

The Lotus work group products running on HP-UX should be available within a year, with AmiPro coming first and Freelance Graphics last, Rome said.

Although HP systems are intended to be the first to run all four Lotus work group applications, Sun Microsystems, Inc. will

unveil a version of cc:Mail for its SPARCstations this quarter, according to Rome. Work is currently under way to port Notes to IBM's RISC System/6000 workstations and Sun's SPARCstations, he said.

Although Rome would not say when Notes will be available on the IBM and Sun platforms, he said those versions could ship before the HP-UX version.

Lotus is looking to accommodate users anxious to take advantage of the power of Unix workstations. The company chose to port its suite of work group applications to the HP platforms first because HP is a large Lotus customer and was willing to contribute to the development effort, Rome said.

HP sided with Lotus because it is the only PC software vendor with "a cross-platform strategy that embraces Unix," said Peter

“The highest growth for the workstation business is in the commercial market.”

▲▲▲

Vescuso, HP market development manager for personal productivity. Part of that strategy calls for the integration of cc:Mail clients with HP's OpenMail messaging backbone, obviating the need for a mail gateway between the two.

Initially, OpenMail's user agent layer will serve as the interface between cc:Mail clients and the OpenMail backbone, which supports X.400 and the Simple Mail Transfer Protocol. Over time, though, cc:Mail clients will access OpenMail messaging servers through the VIM interface.

VIM, which is endorsed by Apple Computer, Inc., Borland International, Inc., Lotus, Novell, Inc. and now HP, is intended to provide a single application program interface to which software developers can write mail-enabled applications.

In general, the agreement with Lotus is intended to make HP-UX workstations and servers appealing to commercial users.

"The highest growth for the workstation business is in the commercial market," Vescuso said. "This is an important component of our commercial thrust."

The products will be available through Lotus' reseller channel and recommended by HP. Without providing details, Lotus said pricing for the products will be comparable to DOS, OS/2 and Windows versions. ■

ODS unveils new Ethernet line based on 10Base-FL

Ware includes transceivers, bridges, PC adapters.

By Skip MacAskill
Staff Writer

RICHARDSON, Texas — Seeking to strengthen its position in the Ethernet marketplace, Optical Data Systems, Inc. (ODS) last week unveiled a line of Ethernet hub modules and bridges that meet the emerging Ethernet-over-fiber standard.

All products in the line will comply with the IEEE 802.3 10Base-FL draft standard for running Ethernet over fiber, which is expected to be finalized by the end of the year. The new standard will allow fiber-optic links to stretch as far as 2 km — twice the

distance currently allowed by the Fiber Optic Inter-Repeater Link standard.

The new offerings include two Ethernet modules for ODS' 290 series of Ethernet chassis-based concentrators. That hub line consists of the 12-slot ODS 295, 296 and 297 chassis, which support a combination of multiple Ethernet and token rings, as well as the four-slot 292, which supports one Ethernet and one token ring.

The ODS 294-FL is a 12-port 10Base-FL Ethernet module, and the 294-TFL is a 12-port module with one FL port and 11 10Base-T

RJ-45 connections, both of which can be used in any 290 series hub.

Both modules are hot swappable, meaning users can replace or change boards without affecting other traffic on the Ethernet.

The 294-FL costs \$4,095, and the 294-TFL is priced at \$2,195. Both products are available now.

Bridges debut

Two 10Base-FL bridges were unveiled as well — the ODS 294-TB-FL and the 294-SB-FL. Both forward and filter 64-byte packets at a rate of 14,800 packet/sec. They also support a variety of connection interfaces, including attachment unit interface (AUI), BNC and single-mode fiber optic.

The 294-TB-FL, which provides a 400-address table, is priced at \$5,435, while the 294-SB-FL, which offers a 4,096-address table, costs \$6,455. Both
(continued on page 50)

Octel buys low-end voice mail system manufacturer

By Bob Brown
Senior Editor

MILPITAS, Calif. — Octel Communications Corp. last week announced the acquisition of Compass Technology, Inc., a Sarasota, Fla., vendor of PC-based voice processing software, for \$10 million in stock.

The deal will enable Octel, which owns the largest share of the high-end voice mail market, to complement that base with low-end products from Compass.

Octel recently reported revenue for its 1992 fiscal year of \$188.8 million and has about 1,200 employees. Compass, a privately held firm founded in 1989, has annual sales of about

\$7 million and employs 95 people.

Octel's flagship Aspen voice mail system is based on a multi-processor architecture and is targeted at sites with over 100 lines. Compass' Smooth Operator and CoOperator voice mail products are designed for single-site businesses with 100 or fewer lines.

The market for small systems is largely untapped, said Doug Chance, Octel's president and chief executive officer. "I think users will be interested in our future direction, which is to offer a way to network the high-end and low-end systems," Chance said. He would not discuss details, however.

Donald Van Doren, president of Vanguard Communications Corp., a Morris Plains, N.J., market research firm, said Octel's purchase of Compass presents "attractive opportunity for branch offices of major companies that Octel serves." However, questions remain about how Octel will link its systems to those of Compass. There are also questions related to price and distributions strategies, he said.

Compass will operate with its existing management structure and distribution channels as a wholly owned subsidiary of Octel, which sells through both direct and indirect channels.

The acquisition is the second for Octel in two years. Last year, Octel purchased Allegro, a research and development firm in Israel that has developed technology for Octel's interactive voice response products. ■

Wollongong's WIN/TCP for VMS gets modular face-lift

Users can buy only the net services they need.

By Joanne Cummings
Senior Writer

PALO ALTO, Calif. — The Wollongong Group, Inc. last week announced it will be porting its WIN/TCP for VMS product to a modular architecture that will offer users more flexibility in terms of price and functionality.

Wollongong will now sell the components of WIN/TCP for VMS individually along with other optional modules.

Three of the modules comprise the current WIN/TCP product. They are: PathWay Access, which includes all of WIN/TCP's

Transmission Control Protocol/Internet Protocol applications; PathWay Runtime, which contains the product's TCP/IP transport and driver interfaces; and the PathWay API/Developers Toolkit, which contains program libraries for application development.

Another three modules are available as options to WIN/TCP. They are PathWay Client NFS, which enables users to add support for Network File System (NFS) clients; PathWay Server NFS, which offers NFS server support; and Server SMB, which con-

tains the file and print sharing services of the Server Message Block (SMB) for Microsoft Corp.'s LAN Manager.

According to David Langlais, vice-president of marketing at Wollongong, the PathWay architecture will enable users to buy only the network services they need.

For example, users could purchase PathWay Access together
(continued on page 51)

Clarification: Netrix Corp. provided incorrect pricing for its device in the July 20 Buyer's Guide, "Vendors aim to transform X.25 switches." The single-processor models of Netrix's #1-Integrated Switching System costs from \$11,000 to \$250,000.

Hughes upgrades ProLINC PC connectivity tool set

By Skip MacAskill
Staff Writer

MOUNTAIN VIEW, Calif. — Hughes LAN Systems, Inc. last week enhanced its ProLINC line of multiprotocol LAN connectivity software with added support for the most current versions of the major operating systems, including MS-DOS and Windows.

Hughes also improved the IBM connectivity capabilities of ProLINC, which is software designed to let DOS-based personal computer users on local-area networks simultaneously support multiple net protocols.

ProLINC 2.01, for example, allows applications written to the Network Basic I/O System communicate over Transmission Control Protocol/Internet Protocol networks.

To provide better handling of source routing functions, Hughes added a set node addressing function to the new package. The capability

ports the latest versions of the most popular NOSes, including Novell NetWare 2.2 and 3.11, Microsoft LAN Manager 2.1, and Banyan VINES 4.11 and 5.0.

Because ProLINC supports the Simple Network Management Protocol, any workstation running

it can be managed by a remote SNMP management station.

ProLINC Version 2.01, which is available now, is priced at \$450 for a single-user license and \$6,250 for a 25-user package. Existing users of ProLINC 2.0 can upgrade at no additional charge.

The product is available in larger quantities through Hughes' site licensing program, which can drop the cost to \$50 per node, depending on configuration.

The company also upgraded its ProLINC WINtools software and announced the availability of DynaComm Asynchronous Version 3.1 for ProLINC, a terminal-emulation product jointly developed by Hughes and FutureSoft Engineering, Inc. of Houston.

The file-transfer manager of WINtools 1.01, which is a collection of TCP tools for Windows-based nets, has been bolstered to support more File Transfer Protocol (FTP) servers, such as

those from Data General Corp., DEC and Honeywell, Inc. Previously, it only supported servers from Sun Microsystems, Inc. and The Wollongong Group, Inc.

WINtools 1.01 is included with ProLINC and supports environments using the latest version of FTP's PC/TCP. It can also be purchased separately for FTP environments for \$75 per package.

Another method ProLINC users can employ to access enter-

(continued on page 47)

WINtools 1.01 supports environments using the latest version of FTP's PC/TCP.



allows any Ethernet, token-ring or broadband Microsoft Corp. Network Driver Interface Specification (NDIS)-compliant driver to access an IBM mainframe via IBM's Data Link Control (DLC) protocol.

The new version also supports a wider range of NDIS-compliant drivers for a variety of Ethernet, token-ring and broadband adapter cards.

ProLINC Version 2.01 will enable workstations or PCs running MS-DOS 5.0, Windows 3.0 or Windows 3.1 to access and transfer files with a variety of hosts, network operating systems (NOS) and file servers via the native protocols those net devices are using.

ProLINC supports several protocols, including the Transmission Control Protocol/Internet Protocol, Digital Equipment Corp.'s Local Area Transport, Novell, Inc.'s Internetwork Packet Exchange (IPX), Banyan Systems, Inc.'s IPC, Sun Microsystems, Inc.'s Network File System and IBM's DLC.

In addition to the MS-DOS and Windows operating system upgrades, the new version also sup-



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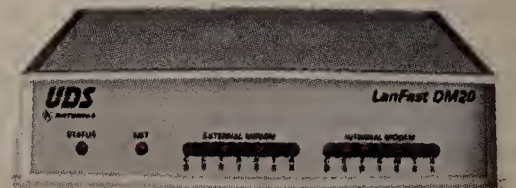
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Dan Lynch
President
INTEROP
Mountain View, Calif.

Data Packets

Digital Communications Associates, Inc. of Alpharetta, Ga., last week announced a new combination hardware/software package that will let remote users dial into a corporate Ethernet local-area network.

DCA’s Remote LAN Node (RLN) 1.1 software runs on a DOS-based personal computer and comes bundled with Standard Microsystems Corp.’s EtherCard Plus Elite for connecting the PC to a 10Base-T thin or thick coaxial-based Ethernet LAN. It also comes with DCA’s new Intelligent Multi Port Adapter.

RLN is available in eight- and 16-port versions for \$3,795 and \$6,850, respectively.

AT&T Paradyne last week began shipping a credit card-sized V.32bis facsimile modem for notebook and laptop computers.

The KeepInTouch Card supports data transmission rates of 14.4K bit/sec, or 57.6K bit/sec through data compression. It adheres to the Personal Computer Memory Card International Association specifications and can also be used with cellular and packet-based wireless nets.

The KeepInTouch Card will be sold to manufacturers of notebook and laptop computers. It costs about \$500. □

IBM enhances 3174 code to ease TCP/IP host links

Will let same terminal access SNA, TCP/IP apps.

By Michael Cooney
Senior Editor

NEW YORK — By the end of the month, IBM will ship software that makes it easier for users to forge links between devices linked to IBM 3174 communications controllers and TCP/IP applications.

New 3174 TCP/IP Telnet Licensed Internal Code, known as Request Price Quotation (RPQ) 8Q0935, will let 3174-attached 3270 and ASCII terminals establish Telnet sessions to multiple IBM or non-IBM Transmission Control Protocol/Internet Protocol host applications.

In the past, users needed two terminals on their desks — one to access the TCP/IP host and another to access the Systems Network Architecture mainframe.

RPQ offerings are special hardware or software products IBM offers upon request only, although many are eventually added as standard features to later generations of wares. The new 3174 TCP/IP client software, announced in March and scheduled for availability Aug. 28., resides on the controller along with its operating system, Configuration Support-C Release 2. The controller must be linked to an IBM Token-Ring local-area network.

The TCP/IP server or host can be directly linked to the Token Ring, or it can reside anywhere in the net that is reachable by bridges or routers, said Cathy Cunningham, an IBM senior programmer.

The software lets the 3270 or ASCII devices have five concurrent sessions to one or more hosts. Those sessions may be any combination of TCP/IP, SNA or ASCII. Employing the 3174’s split-screen capability, users can hot-key among those five sessions simultaneously. They can also cut and paste data from the 3270 session to the Telnet session but not vice versa.

While the new RPQ handles TCP/IP links for terminals, the 3174’s Peer Communications (continued on page 14)

CentrumRemote localizes remote PC, laptop users

By Jim Duffy
Senior Editor

SAN JOSE, Calif. — Centrum Communications, Inc. last week brought out a server that allows users of remote personal computers and laptops to dial into corporate networks and access data as if they were locally attached to the network.

The company’s CentrumRemote remote access server is a modular, rack-mountable device that attaches to an Ethernet local-area network and provides access to resources on that LAN for up to 16 remote users. The device also supports bridging and routing of LAN traffic over dial-up lines, a feature designed to obviate the need and expense of leased telephone lines.

CentrumRemote sports up to 16 ports, including two V.35, RS-449, RS-232 or X.21 interfaces for connecting to leased T-1/E-1 lines.

The device also has three

Ethernet ports, while the remaining interfaces are for RS-45 asynchronous modem connections at speeds up to 57.6K bit/sec.

The server supports the Point-to-Point Protocol (PPP) and Serial Line Interface Protocol (SLIP), and can route Internet Protocol and Novell, Inc. Internetwork Packet Exchange (IPX) packets.

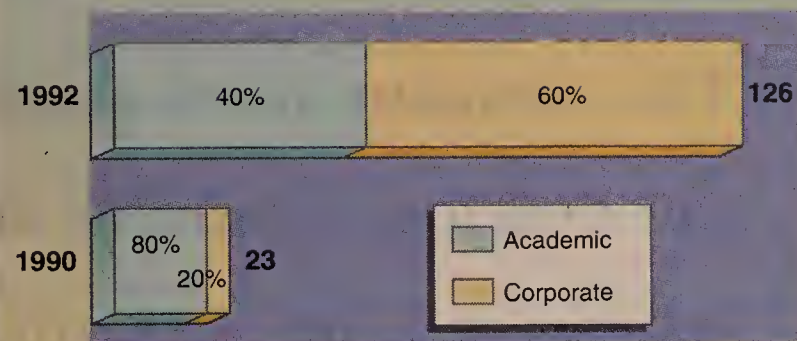
CentrumRemote is designed to grant full LAN node status to remote laptop, notebook and desktop PCs via client software on the remote nodes that includes PPP, SLIP, the Network Driver Interface Specification, Open Datalink Interface and File Transfer Protocol Packet drivers.

Software on the locally attached CentrumRemote server includes a node-emulation component that holds network addresses for remote nodes and performs transmission, connection, security and data compression management.

(continued on page 14)

JvNCnet goes commercial

Number of customers



After catering mostly to universities and academia, Princeton University’s John von Neumann Computer Network customer base is now predominantly private corporations.

GRAPHIC BY SUSAN J. CHAMPENY

SOURCE: GLOBAL ENTERPRISE SERVICES, INC., PRINCETON, N.J.

Fed-funded research network goes public

Princeton U’s JvNCnet sheds academia image and concentrates on for-profit business base.

By Ellen Messmer
Washington Correspondent

PRINCETON, N.J. — For the first time ever, a regional research network started with federal funds and run by a university has made the transition to a privately held for-profit company.

Princeton University’s John von Neumann Computer Network (JvNCnet) has been purchased by its former director, Sergio Heker, now president of the newly formed Global Enterprise Services, Inc. The firm plans to immediately expand the net beyond the Northeast to the West Coast as well as foreign countries.

Global Enterprise Services plans to install nodes in Pittsburgh, Santa Clara, Calif., and Washington, D.C. by year end. JvNCnet had previously established international access points in Japan, Singapore, Taiwan and Venezuela, but Global Enterprise Services now plans to open offices abroad, as well. The firm, with a staff of 15, is now moving the network operations center off-campus to an office nearby.

The first T-1 academic network in the country, JvNCnet sprang up six years ago as a way to connect universities in the Northeast to Princeton’s JvNC Supercomputer Center, funded by the National Science Foundation (NSF).

The center closed when it lost NSF funding in 1989, but the network stayed on-line with continued funding from NSF as well as customer fees. JvNCnet, which

had previously been run by 13 universities, was then transferred to Princeton University.

According to Heker, the JvNCnet customer base has become increasingly commercial. JvNCnet stopped receiving NSF funding last year, and in the last

JvNCnet has principally offered Internet access services under turnkey installation plans.

▲▲▲

24 months, its customer base has increased from 23 to 126.

Of the original 23 customers, 80% were academic institutions, while only about 40% are universities now, he noted. JvNCnet counts Ciba-Geigy, Ltd., Exxon Corp. and Squibb Corp. among its corporate customers.

“Our activity is going to become more commercial and less related to the university mission,” Heker said, adding that he plans to join the Commercial Internet Exchange (CIX) in the future.

For the past three years, JvNCnet has principally offered Internet access services under turnkey installation plans.

As a private company, Global (continued on page 14)

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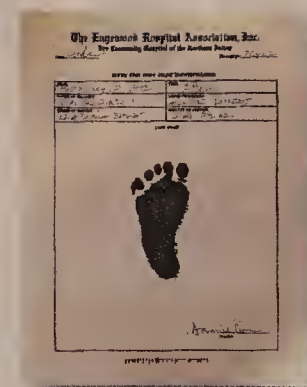
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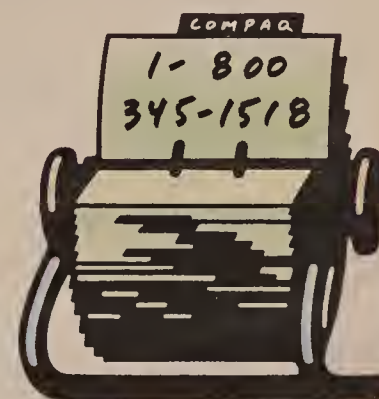
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While still managing to deliver 100 percent of

IBM enhances 3174 code to ease links

continued from page 9

feature lets attached OS/2 and DOS personal computers access multiple TCP/IP hosts when the 3174 is Token Ring-attached. IBM added the Peer Communications feature, a former RPQ, to the currently available release of Configuration Support-C Release 2.

The RPQ package can be managed by any Simple Network Management Protocol-based system. It can report such man-

agement data as traffic statistics, error counts, host availability and line quality to the SNMP manager, Cunningham said.

The new TCP/IP support brings IBM in line with competitors such as McDATA Corp., whose LinkMaster 7100 controller supports TCP/IP links to the mainframe.

According to Anura Guruge, an independent strategic analyst in New Ipswich, N.H., limiting the TCP/IP links to Token Ring-attached 3174s was necessary because mixing TCP/IP and SNA on the same Synchronous Data Link Control link would have required SDLC encapsulation.

Using SDLC links would also require the Telnet sessions to be routed and converted by the mainframe. "We didn't want users to have to do that," Cunningham said.

Customer pressure could force IBM to include the Telnet feature with a later release of the 3174's operating system and its X.25 adapter, Guruge added.

The new software is free to users with the latest version of Configuration Support-C. The 3174 Telnet feature requires about 1M byte of memory and an added 7K bytes per Telnet session. Additional 3174 memory costs \$2,800 per megabyte. **Z**

Centrum localizes remote PC users

continued from page 9

Another component, called a "proxy" network, makes the remote nodes look to the corporate Ethernet LAN as if they are on the same LAN.

After a remote user handshakes with the access server and is granted access to the network, data packets begin to flow from the remote node. They are delivered to the node emulator, which attaches a media access-layer address to the data. It then passes the data to the bridging and routing component for connection to the corporate LAN.

"[Remote users] get the same level of network service as their peers attached to the LAN," said Centrum President Gilbert Hu. "CentrumRemote gives LAN resources back to them even when they are traveling."

The first release of CentrumRemote supports DOS, Windows and Unix clients. Support for Apple Computer, Inc. Macintosh computers will be available in the first quarter of 1993.

CentrumRemote is available now. A four-port remote access server is priced at \$3,495, while an eight-port version costs \$4,495 and a 16-port configuration is priced at \$6,295.

All options include an unlimited license for all software drivers. A T-1 routing module will be available in late 1992. **Z**

Fed-funded research network goes public

continued from page 9

Enterprises Services stands ready to complement that with private network services, including offerings targeted at local-area network interconnection. Heker said his company's new independence will permit greater flexibility and the ability to meet customer demands.

One commercial competitor, Performance Systems International, Inc. (PSI), has experienced a history similar to JvNCnet's. In 1990, PSI began as the subcontractor of network service and operations for the original New York State Educational Research Network (NYSERNET) group of state universities and federally funded institutions.

John Eldredge, director of sales at PSI, said his firm has expanded its customer base and could survive without support from NYSERNET, which continues as a nonprofit entity.

Eldredge, acknowledging that JvNCnet had become a competitor, said the action today for Internet Protocol networking is in the commercial marketplace, where PSI has seen its commercial base expand at a rate of 500% to 600% per year.

Steve Wolff, director of networking at NSF, said the federally funded regional networks will continue to play an important role, but he welcomed the commercialization of network services on the Internet.

"The evolution of the network has got to be away from direct government subsidy and hidden subsidies of parent institutions," he said. "I support JvNCnet's evolution. It's growing up, just like the rest of the Internet." **Z**

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Netnotes

Triton Technologies, Inc. brought out a new version of its CO/Session LAN II that provides better performance as well as support for Transmission Control Protocol/Internet Protocol and Microsoft Corp. Windows 3.1.

CO/Session LAN II is server-based software that lets net managers take control of and troubleshoot workstations on remote local-area networks.

According to the Iselin, N.J., company, using a combination of proprietary data compression and Novell, Inc. Internetwork Packet Exchange (IPX) pipe management, CO/Session LAN II Version 6.1 offers a 300% performance improvement over the previous version when used over low-speed 9.6K bit/sec asynchronous bridges. Remote Windows performance is also increased about 20% over the previous version.

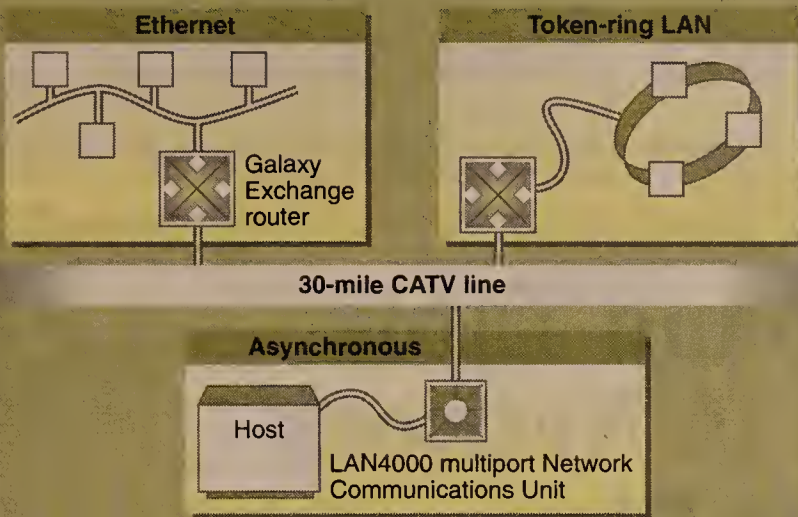
In addition, the TCP/IP support makes this remote control package a viable choice for large organizations using a TCP/IP backbone.

The new version comes equipped with a Windows 3.1 interface and can control remote stations based on Windows 3.1.

CO/Session LAN II 6.1 is available now for \$295 per file server. As many as 100 users are allowed on each copy purchased.

For additional information, contact Triton Technologies at (908) 855-9440. ☐

Connecting LANs over CATV



New products from Zenith let users connect Ethernet, token-ring and even asynchronous traffic over a 30-mile CATV backbone.

GRAPHIC BY SUSAN J. CHAMPENY

SOURCE: ZENITH ELECTRONICS CORP., GLENVIEW, ILL.

NodeVision keeps tabs on ever-changing PC networks

By Margie Wylie
Senior Editor

GILBERT, Ariz. — Network managers tired of tracking down the constant changes in their PC networks may find relief with NodeVision, LAN workstation management software announced last week by Fresh Technology Co.

Billed as a change tracking system for networked personal computers, the software is designed to provide the information a troubleshooter needs when a change on a user's computer causes it to misbehave.

“NodeVision is geared toward the changes that network managers need to know about to stay on top of their installation,” said Kip Meacham, public relations manager for Fresh Technology. “Products like [Novell, Inc.'s LANtorn] typically tell you of a problem at a node without identifying what the problem is.”

The software lets managers obtain a before and after comparison to see what has changed at a node and help determine where the problem might reside.

NodeVision works with any PC local-area network operating system, including Novell's NetWare, Banyan Systems, Inc.'s VINES and Microsoft Corp.'s LAN Manager. It includes a console that runs under Windows and a data collection program that runs on DOS and Windows PCs.

The PC software — usually executed when a user starts up or logs on to a server — reports back to the central NodeVision database. The database stores

statistics such as the status of a machine's I/O ports, memory and logical devices, plus information about specified files on the computer. The program can also collect network traffic statistics for each workstation.

However, since there is no common application program interface for interacting with PC components such as video adapters or hard drives, the product cannot return, for example, the revision number on a board or the name of the board's maker. There are fields in the database for managers to add this data manually.

NodeVision generates formatted reports, but data can also be exported for further processing and formatting.

The program provides a facility for recording and managing cabling information, including import and export features to get data from other network management consoles such as SynOptics Communications, Inc.'s LattisNet Network Management System. In addition, NodeVision can directly access the net management databases of Novell's LANtorn Service Manager and its NetWare Management System.

NodeVision can also check the status of an uninterruptible power supply through an RS-232 connection.

In addition, the program can track and help managers assign Transmission Control Protocol/Internet Protocol addresses.

NodeVision is shipping now. Licenses range from \$495 for the 50-user system to \$4,995 for the 1,000-user version. ☐

Zenith users turn on CATV for LAN links

Enhancements to products enable customers to connect LAN segments using broadband cable.

By Caryn Gillooly
Senior Editor

GLENVIEW, Ill. — Tired of relying on your local carrier to connect your local-area networks? Try your cable company.

Zenith Electronics Corp. has enhanced a family of products to let customers use broadband cable to connect different LAN segments to one another or to connect remote users to a larger corporate network.

Just as users employ the public telephone network for data traffic, they will now be able to use public cable television networks or private broadband cable links to connect LANs over a distance of up to 30 miles.

The enhanced products provide LAN interconnection capabilities by using subsplit radio frequency assignments on an existing CATV or private cable network.

According to Ed Zylka, marketing director of Zenith's Cable

Products Division, based here, that means the customer can now use a single broadband connection to send LAN traffic as well as virtually any other type of traffic, including voice and video.

For directly connecting Ethernet devices such as engineering workstations over broadband cable, Zenith offers the Channel-Mizer, a hardware product similar to a media access unit with two attachment unit interfaces.

For connecting individual personal computers to the backbone, Zenith provides LAN4000 LAN-cards for both Industry Standard Architecture- and Micro Channel Architecture-based machines.

To link different network segments — such as Ethernet, token-ring, broadband and even wide-area connections — Zenith provides the Galaxy Exchange router.

According to the company, the router has a modular architecture (continued on page 16)

Mac FDDI kit makes fiber easy, cheap

By Margie Wylie
Senior Editor

BOSTON — With the Macintosh's popularity in publishing and prepress, it would only make sense that high-speed Macintosh networking products should be more affordable and easier to use.

At least, that was the thinking behind the new Spectra NB, a NuBus Fiber Distributed Data Interface network interface card introduced by Impulse Technology here at the recent MacWorld Expo.

“We've been watching the chipset [market] for five years now, thinking about the prospect of solving some of the problems you find in prepress and publishing businesses, where they are trying to shuffle 100M-byte images around the network,” said

Ron Garrett, president of the Cumming, Ga.-based company. “Now we think the price is finally approaching a more reasonable point to do that.”

Due to ship in September, the cards have been designed to give the typical Apple Computer, Inc. Macintosh user 100M bit/sec bandwidth over fiber-optic cabling “without requiring a Ph.D. in FDDI,” Garrett said.

Each card ships with a pre-cut, terminated 10-meter length of fiber cabling with plastic connectors that easily snap into Spectra NB cards and hubs. The connectors can also be keyed to fit only certain hub ports so users cannot confuse them, he said. By contrast, cutting and terminating most fiber-optic cabling today requires several steps, specialized tools and expertise.

Spectra NB's introductory pack of two cards and a 10-meter cable will cost \$2,999.

“Compared to other boards running at about \$4,000 each, that's a great deal,” said Pieter Hartsook, a principal for The Hartsook Letter, an Alameda, (continued on page 16)

Mac FDDI kit makes fiber easy and cheap

continued from page 15

Calif.-based research firm that specializes in Macintosh networking and industry newsletters.

The pack lets users establish a point-to-point connection between two Macintoshes and experience FDDI's speed.

"Even with the lower end Macintoshes, you can get 6M to 8M bit/sec throughput," Garrett said. That speed does not approach FDDI's full bandwidth, he said, but is much faster than LocalTalk's total bandwidth of

256K bit/sec and twice Ethernet's practical throughput of about 3M or 4M bit/sec.

"When you get a lot of people on the network, that's going to make a real difference," Hartsook said.

If users like what they see with the introductory pack, they can expand the network beyond two Macintoshes with a hub and additional cards.

Expandable to 12 ports, the Spectra hub will sell for \$3,999 with two ports in-

stalled. Each additional Spectra NB card beyond the introductory two-pack will cost \$2,999 but will also ship with a cable and an expander card for the Spectra hub.

"That puts you at about \$1,800 per connection," Garrett said.

The company plans to release an ATbus card for personal computers later this year and will support copper wiring, shielded twisted pair and unshielded twisted pair when the current debates raging around how to implement FDDI over copper wiring begins to settle down and a clear standard emerges, Garrett said. **Z**

Zenith users turn on CATV for LAN links

continued from page 15

that allows the customer to connect any combination of the four network types. It has four ports and supports a variety of protocols, including X.25 and Synchronous Data Link Control, plus wide-area T-1 and frame relay connections.

Zenith also offers the LAN4000 Network Communications Unit (NCU), a hub-like device providing broadband cable connectivity for asynchronous devices, such as terminals, mainframes and modems. The LAN4000 is available in four configurations, providing connectivity for two to 16 devices.

To manage the NCUs, LANcards and ChannelMizer, Zenith offers the LAN4000 Network Manager system. This system provides remote configuration, resource management, database accounting and NCU node security.

The system also includes diagnostic facilities that can identify data link- and physical-layer faults.

Finally, all Zenith broadband cable products require a frequency translator to

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According to Zenith, using the CATV network is an alternative to using T-1 or other backbone connectivity options.



establish a radio frequency channel and create a virtual bus topology on a coaxial backbone. The LAN06FTR is a hardware device attached to the backbone from the customer site. It converts the downstream signal, or transmit frequency, into the upstream signal, or receive frequency, creating a full-duplex data path on the cable backbone.

Actual users

According to Zenith, using the CATV network is an alternative to using T-1 or other backbone connectivity options.

Media General Cable of Fairfax, Va., used twisted pair before moving to a CATV backbone, according to Michael Nelson, vice-president of construction and technology operations at Media General. The company currently uses CATV to forge connections between the file servers in its construction and engineering offices, he said.

However, in addition to being a CATV user, Media General is also a CATV provider. Nelson said some of the company's customers, such as the Fairfax County School System and the county's park services, have taken advantage of the existing CATV network to form large backbone nets.

All of Zenith's CATV products are available now. The ChannelMizer costs \$1,995; the LAN4000 LANcards start at \$895; the Galaxy Exchange router costs \$4,995, with individual modules starting at \$1,995; the LAN4000 NCU costs \$270 per port; and the LAN4000 Network Manager system costs \$1,995. **Z**

INTERNETWORKS

LAN-TO-LAN AND LAN-TO-WAN EQUIPMENT AND STRATEGIES

Worth Noting

“I expect we’re going to see more PBX vendors trying to remarket their technology or some derivative of it as a switching hub over the next few years.”

Todd Dagres
Director of data communications
research and consulting
The Yankee Group
Boston

Eicon's Router for NetWare takes aim at Novell users

Offering works with Novell's newest products.

By Maureen Molloy
Senior Writer

MONTREAL — Eicon Technology Corp. last week announced the latest version of its software-based, NetWare-specific wide-area multiprotocol router that includes data compression and tighter integration into Novell environments.

Router for NetWare V3R1 can now be installed as a NetWare Loadable Module (NLM) in a NetWare 386 file server and also works with Novell's newest multiprotocol router and WAN Links products (“Novell targets remote LAN users with upgraded router,” *NW*, Aug. 3).

WAN Links is Novell's new NLM that enables its router and Eicon's Router for NetWare to transport the Transmission Control Protocol/Internet Protocol, Internetwork Packet Exchange (IPX) and AppleTalk protocols across X.25 and leased-line nets.

In addition to point-to-point leased lines and X.25 links, Router for NetWare V3R1 transmits local-area network traffic between NetWare LANs over frame relay networks.

Router for NetWare also has

been enhanced to include 4:1 data compression to boost throughput on the internet.

The product is available in two configurations: multipoint for X.25 connections and point-to-point for frame relay and leased-line connections.

Users can choose a single-, dual- or quad-port EiconCard network interface card and install as many as four EiconCards in a single router.

A maximum configuration using four quad-port cards provides links to as many as 64 remote LANs using one physical connection to the X.25 or frame relay network. The WAN links operate at speeds up to T-1.

The router also features enhanced network management facilities by using a Microsoft Corp. Windows-based network management console that includes status and statics displays, router directory services, polling and activity logging. The console concurrently monitors and manages any Router for NetWare.

Available now, Router for NetWare V3R1 costs \$995.

For more information, contact Eicon at (214) 239-3270. ☐

CrossComm gives birth to new ILAN

By Skip MacAskill
Staff Writer

MARLBOROUGH, Mass. — CrossComm Corp. last week joined a growing list of vendors that are rolling out low-end routers by announcing a scaled-down version of its ILAN Universal Router.

CrossComm unveiled ILAN jr., which is essentially a two-slot version of its six-slot ILAN router. Designed for branch and remote offices, ILAN jr. allows users to employ routers instead of less intelligent source routing bridges for about the same price.

Cisco Systems, Inc. and Proteon, Inc. have recently announced similar low-end products (“Cisco unveils flashy lower end rout-

ers,” *NW*, Aug. 10, and “Proteon bridge/router eases remote site deployment,” *NW*, July 27).

The ILAN jr. is a token-ring router that can support Systems Network Architecture's Synchronous Data Link Control and Network Basic I/O System protocols as well as Novell, Inc.'s Internetwork Packet Exchange (IPX).

Support for the Transmission Control Protocol/Internet Protocol and AppleTalk is planned for next quarter, according to Gregory Koss, vice-president of product marketing at CrossComm.

ILAN jr. also supports all standard bridging protocols, including source routing transparent.

CrossComm declined to provide filtering and forwarding rates or aggregate throughput figures.

ILAN jr. is available now and comes in three versions. The model with two token-ring local-area network connections is priced at \$6,000, while the version with one token-ring LAN and

(continued on page 19)

LAN/WAN management suffers from cultural gap

	LAN management	WAN management
Division of management responsibilities	Centralized manager continuously polls relatively dumb agents to glean management information.	Intelligence is distributed throughout network nodes, obviating the need for bandwidth-intensive polling by centralized network management system.
Method of communicating management information	Bandwidth is inexpensive, allocated as needed and isn't a design constraint.	Design goal is to minimize use of expensive wide-area bandwidth.
Format of management information	Organized into a standard format using SNMP Management Information Bases.	Each vendor has a proprietary format.

Key differences in how net management information is culled represents an obstacle to the seamless integration of LAN and WAN management systems.

GRAPHIC BY SUSAN J. CHAMPENY

SOURCE: GANDALF SYSTEMS CORP., CHERRY HILL, N.J.

Gandalf to integrate LAN/WAN net mgmt.

Preps HP OpenView-based system to support its entire line of muxes, bridges, routers and more.

By Maureen Molloy
Senior Writer

CHERRY HILL, N.J. — Gandalf Systems Corp. next month will become one of only a handful of vendors to address the issue of standards-based integrated LAN/WAN management when it unveils a system capable of monitoring and controlling both its local- and wide-area equipment.

The integrated system is based on Hewlett-Packard Co.'s OpenView management system. Although it will initially use the Simple Network Management Protocol, the offering will ultimately support the Open Systems Interconnection's Common Management Information Protocol (CMIP) and the OSF's Distributed Management Environment (DME).

Gandalf currently has two distinct management platforms, including the Infotron Network Management System (INMS) acquired last year when Gandalf merged with Infotron Systems Corp. INMS supports management of wide-area network components, while Gandalf's Access Manager monitors local-area network-based devices.

“With all of our wide-area network products moving over to standards-based management, the user will now have the ability to manage all devices on an internetwork from a single database,” said John Hanton, Gandalf's LAN product manager.

Network Equipment Technol-

ogies, Inc. took a similar tack late last year when it announced that it intends to develop DME-compatible applications for managing its wide-area and internetworking equipment (“NET embraces DME as base for net mgmt. applications,” *NW*, Nov. 25, 1991).

Gandalf, however, will provide the underlying management system and will port to it much of the key functionality inherent in the proprietary INMS — such as traffic pattern simulation and centralized error collection.

The new system will be capable of using SNMP to manage WAN devices such as statistical multiplexers, although Gandalf does not expect to provide all of the applications on its own.

A passel of SNMP-based network management applications have been cropping up over the past year, and growth is expected to continue at a rapid clip. Gandalf said its integrated LAN/WAN network management system will take advantage of these new applications for WAN management and any others that are OpenView-compatible.

For example, SNMP-based applications for performance management, trouble ticketing and inventory management are not available on proprietary WAN management systems but will be on Gandalf's new system.

“There are no standards in wide-area network management,

(continued on page 18)

Link Notes

Frontier Technologies Corp. of Mequon, Wis., next month will roll out Super-PPP, software that gives Microsoft Corp. Windows-based personal computers support for Internet Protocol routing over dial-up serial lines using the Point-to-Point Protocol (PPP). When used with Frontier Technologies' existing Super-TCP for Windows, Super-TCP for Windows gives Windows-based PCs support for such Transmission Control Protocol/IP applications as terminal emulation, file transfer, and network printing and management.

Available in September, Super-PPP will cost \$95.

For additional information, call Frontier at (414) 241-4555.

Wellfleet Communications, Inc. last week signed a reseller agreement with **Falcon Microsystems, Inc.**, a government and commercial supplier of computer and internetworking gear based in Landover, Md.

Under the deal, Falcon, which is the exclusive representative of Apple Computer, Inc. and Ungermann-Bass, Inc. in the federal marketplace, will resell Wellfleet's

(continued on page 18)

Coral ships long-awaited high-end bridge/router

By Maureen Molloy
Senior Writer

MARLBOROUGH, Mass. — After more than a year of delays, Coral Network Corp. last week announced the availability of its first bridge/router.

The Broadband Enterprise Switch (BES) Model CX1600 is aimed at the high-end user and will compete directly with Wellfleet Communications, Inc.'s 1G bit/sec Backbone Node bridge/router.

The product was originally scheduled to ship last summer.

The 800M bit/sec BES is equipped with fully redundant

hardware and will initially support up to 20 Ethernet and three Fiber Distributed Data Interface local-area nets. Token-ring support will be added by year end.

The BES, with an aggregate throughput of 400,000 packet/sec, will initially support the Transmission Control Protocol/Internet Protocol and Internetwork Packet Exchange (IPX). DECnet and AppleTalk protocol support will be added by year end.

On the wide-area side, the device will support a T-1 interface and frame relay links at speeds up to T-1.

Additionally, the firm announced it has chosen Hewlett-Packard Co.'s OpenView as the platform for managing the BES. The vendor will develop product-specific management applications, which, combined with OpenView, will form the Coral CView Management System.

Coral also supports a Simple Network Management Protocol-compliant agent on its BES, allowing the device to be managed by any SNMP-based network manager.

Finally, the vendor last week announced the opening of six regional sales offices throughout the country to market the BES. They are in Atlanta, Boston, Chicago, New York, San Francisco and Washington, D.C.

For more information, contact Coral at (508) 460-6010. ■

Firm to integrate LAN/WAN mgmt.

continued from page 17

and we saw that SNMP applications are growing by leaps and bounds, especially with the advent of the OSF's Distributed Management Environment," said Andrew Flitter, Gandalf's WAN product manager. "We, therefore, feel that SNMP is the way to go and, eventually, OSI when it comes about."

Gandalf said it will address SNMP's sometimes inordinate packet overhead by polling WAN devices only once each hour, as opposed to the typical 30- to 60-second intervals. Devices would be polled more often if a network glitch occurs, which the system will detect using SNMP traps.

The company will also overcome SNMP's security limitations by using password-protected Telnet sessions until Secure SNMP is available.

Integrating the management of LAN and WAN devices is no small task because significant differences exist between the technologies used to manage the two types of nets. These differences involve how network management information is gathered, transferred and formatted by the

various network components (see graphic, page 17).

Most so-called integrated net management systems provided by WAN equipment vendors actually consist of two distinct software packages that reside on a single workstation, said Tom Nolle, president of CIMI Corp., a consultancy in Voorhees, N.J. Such systems essentially provide windows into two independent databases for the LAN and WAN management systems from a single workstation.

Nolle said the lack of standards commonality across the local and wide areas breeds the need for a more elegant way to integrate management of LAN and WAN devices.

However, OSI's CMIP — not SNMP — is the preferred solution, he said, because of OSI's international acceptance.

"Until [Gandalf] moves to OSI, the international credibility of the system will be limited," Nolle said. "If the user needs to make an international connection, OSI may be a requirement."

Gandalf will demonstrate the new integrated network management system at INTEROP 92 Fall and is scheduled to ship the product by early next spring. Pricing was not available at press time. ■

Link Notes

continued from page 17

entire product line.

Also, the two companies are devising plans to make Falcon a certified training provider for Wellfleet products.

For additional information, contact Wellfleet at (617) 275-2400.

Optical Data Systems, Inc. (ODS) and **PrimeService** of Framingham, Mass., have announced a service alliance under which PrimeService will be the North American service provider for ODS.

PrimeService will supply ODS users with on-site service and parts support for ODS' complete line of internetworking products,

including hubs, hub modules, personal computer cards and transceivers.

To contact ODS, call (214) 234-6400.

FiberCom, Inc. announced a contract worth up to \$3.5 million to supply its RingMaster 7100 FDDI bridges to the NASA Kenne-

(continued on page 37)

Psychologists call something that runs continuously, without pause or interruption, an obsession.

(When the same thing happens on your network, it's called the LinkBuilder ECS hub.)

Synernetics unveils SunNet Mgr. version of Viewplex

Net mgmt. system will also support more MIBs.

By Skip MacAskill
Staff Writer

BILLERICA, Mass. — Synernetics, Inc. has announced a new version of its SNMP-based network management software that will run under SunConnect's SunNet Manager, enabling users to more easily manage multivendor networks.

Synernetics' Viewplex 2.0 also offers such new features as auto-discovery and support for additional Management Information Bases (MIB). By using both Viewplex and SunNet Manager, net managers can compile information from various vendors' devices on a network and manage them from a single platform.

"Because we're seeing a lot of demand from our customers, our future direction is to [also] support OpenView," said John Hanratty, manager of strategic programs for Synernetics.

Viewplex can manage Synernetics' Interplex 800 bridge/routers and LANplex 5000

switching hubs, as well as any Ethernet device attached to those hubs. Using the Station Management Protocol (SMT), it can also manage any Fiber Distributed Data Interface gear.

The software features a proto-

SNMP security has also been enhanced via support for community names.

▲▲▲

col-independent autodiscovery function that can automatically update net configuration information as devices are added or dropped. It can graphically present network topology maps, as well as provide logical network diagrams and front-panel equip-

ment views of all Synernetics devices on the net.

Net managers can also customize Viewplex's management information screens to fit their own configuration management, performance tuning or diagnostic requirements.

Viewplex can access and control multiple network devices through the Simple Network Management Protocol and Station Management Protocol Version 6.2.

Extra MIB support

Additionally, support for MIB II and the Ethernet MIB recommended by the Internet Engineering Task Force has been added to the existing FDDI MIB support.

SNMP security has also been enhanced via support for community names, which allows the net manager to limit access to a particular agent, according to Hanratty.

"Any user can access an agent that has a public rating," he explained. "But net managers can set up classes of agents to regulate who can write to them or read from them, giving the network an added degree of security."

Viewplex Release 2.0 is priced at \$5,000 and is available now. ■

CrossComm gives router offspring

continued from page 17

one serial wide-area network connection costs \$6,500. There is also a token ring-to-Ethernet model that costs \$7,900.

ILAN jr. currently supports a serial WAN port that operates at up to 2M bit/sec. A 2.048 bit/sec wide-area X.25 interface will be rolled out next quarter, Koss said.

The product is based on CrossComm's Universal Router Architecture, which was recently redesigned with a new routing algorithm based on Shortest Path First and a microprocessor that captures and maintains addresses and other information about devices on the network ("ILAN router to get key SNA support," *NW*, March 9).

Geared toward users such as banks and insurance companies that need to tie branch LANs into corporate networks, ILAN jr. offers such advanced features as autodiscovery. As soon as it is introduced to the network, it automatically learns the net topology and builds tables of information, such as the protocols in use and the number of packets transmitted and received.

ILAN jr. also offers diagnostic

capabilities via its support for CrossComm's ExpertTest, which is a personal computer-based net management tool that can troubleshoot connectivity problems between devices, obviating the need to staff remote sites with support technicians.

The router can also be equipped with CrossComm's Protocol Independent Routing (PIR) software option, which allows the device to transport SNA and token-ring LAN traffic across an internetwork more efficiently.

According to the company, PIR dynamically selects the best path between sites, eliminating the broadcast storms caused by a typical source routing bridge's discovery process.

Unlike a source routing bridge, ILAN jr. can reroute traffic around failed WAN links without terminal session loss, CrossComm said. It can also overcome the seven-hop limitation of source routing, which hinders the bridge's effectiveness in large meshed network topologies.

Other options, such as flash erasable programmable read-only memory, which enables the user to download software configurations and upgrades from a central site, can be added by the user as needed. ■



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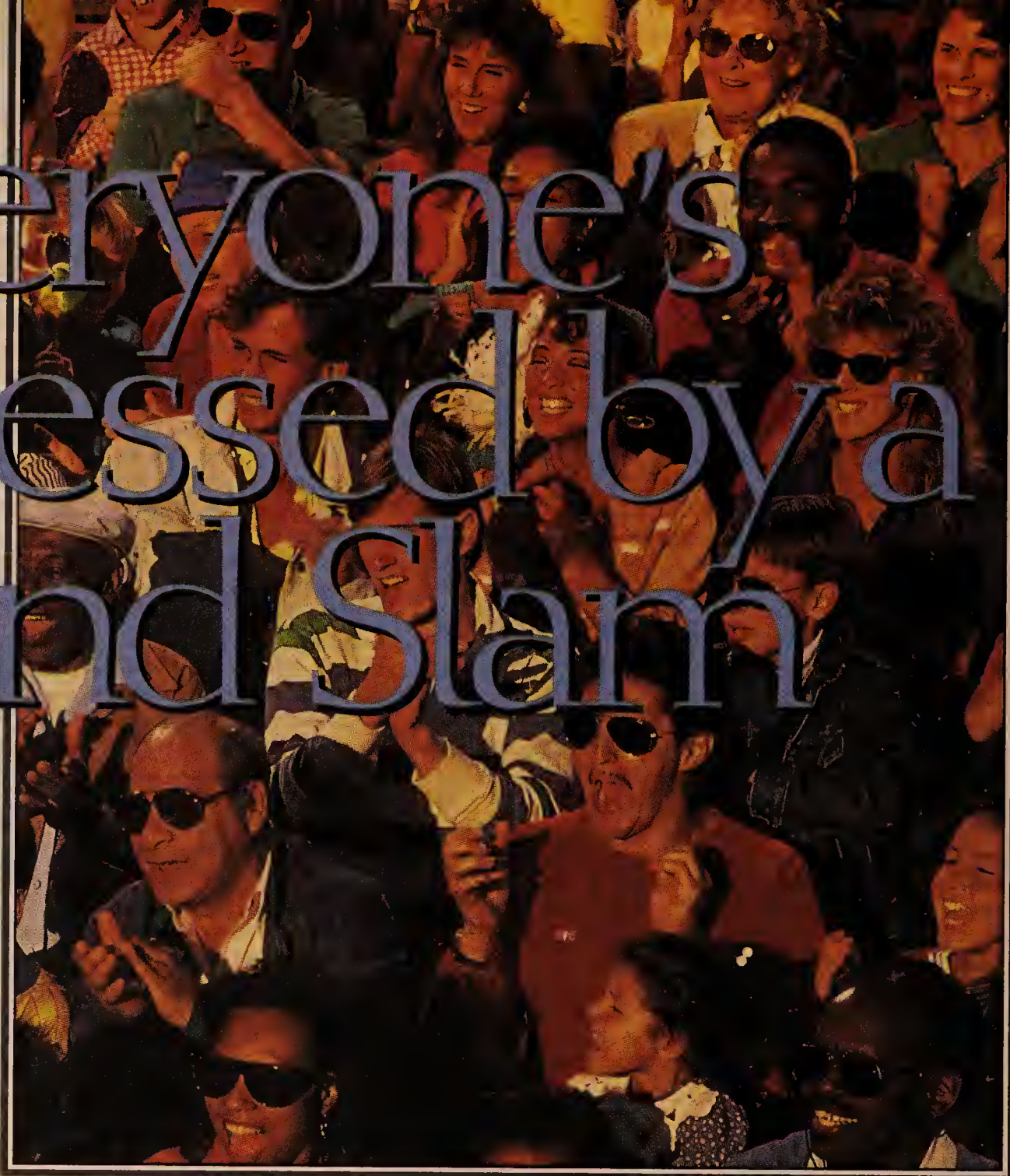
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Sources: *The Wall Street Journal*/ICA Member Study, Erdos & Morgan/MPG, 1992; Audience Survey of INTEROP 91 Fall, Exhibit Surveys, Inc.; and Audience Survey of ComNet '92, Exhibit Surveys, Inc.



GLOBAL SERVICES

DOMESTIC AND INTERNATIONAL VOICE/DATA SERVICES, ACCESS EQUIPMENT AND REGULATORY ISSUES

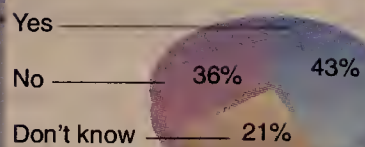
Worth Noting

“Users don’t want the RBHCs to base SMDS pricing on usage because they have no idea how much internetwork traffic they have.”

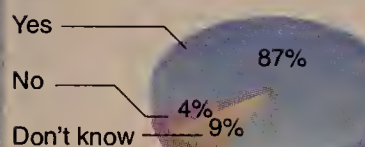
Tom Nolle
President
CIMI Corp.
A Voorhees, N.J., consultancy

ISDN begins to deliver on promise

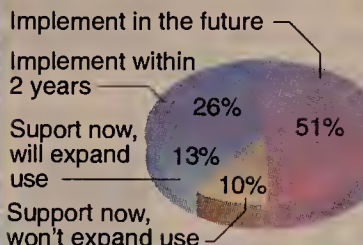
Has ISDN delivered on its promise of integrating voice and data applications?



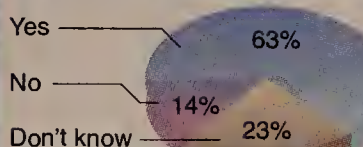
Computer-assisted telephony (CAT) is providing the anticipated payback/efficiency gain:



Organization's policy toward integrating voice and data applications:



For the CAT users: Will your organization be implementing ISDN?



Figures are based on interviews with 200 telecommunications and MIS managers.

SOURCE: BUSINESS RESEARCH GROUP, NEWTON, MA.
GRAPHIC BY SUSAN J. CHAMPENY

User pushes carriers for details on SMDS

GSA user, happy with early SMDS version, urges Bells to file tariffs and commit to service rollout.

By Bob Wallace
Senior Editor

PHILADELPHIA — Even a veteran salesperson would have trouble selling a product without a price tag and without knowing when the item would be available.

This is the predicament that Bill Horst finds himself in as a network manager with the General Services Administration here — the country's first paying Switched Multimegabit Data Service (SMDS) customer.

Delighted with an early version of SMDS offered by Bell Atlantic Corp., Horst has been busy selling SMDS to other GSA network managers who need to link numerous sites within the same city — a natural fit for a metropolitan-area network service.

But lately, Horst has spent more time pressing carriers to file SMDS tariffs and roll out a full-featured version of the high-speed data service than he has on a soapbox, pitching the service to all listeners.

“I’ve done just about all I can do with the telcos to push for SMDS,” he said. “That has included meeting with some face-to-face, giving presentations to them on what we want from SMDS and recently urging members of the SMDS Interest Group to get moving.”

The SMDS Interest Group is an association of users, local and long-haul carriers, equipment vendors and consultants formed in 1991 to advance the SMDS cause.

SMDS is a switched high-speed digital data service capable of supporting transmission speeds between 1.5M and 155M bit/sec. The service promises to be more cost-effective for certain applications, such as local-area network interconnection, than dedicated links.

Analysts expressed concern that SMDS may go the way of Integrated Services Digital Network if the regional Bell holding compa-

(continued on page 22)

FCC makes way for PCS, low-orbit satellite system

Approves proposal to allocate radio spectrum.

By Anita Taff
Washington Bureau Chief

WASHINGTON, D.C. — The FCC unanimously approved proposals recently to carve out radio spectrum for personal communications services (PCS) and a new low-orbit satellite system, both of which will support wireless voice and data communications.

Federal Communications Commission officials said the decisions set the stage for a new communications era in which people on the go will be able to communicate using small, handheld devices.

The commission, which had previously targeted the 1.8-GHz to 2.2-GHz frequency for PCS, officially proposed using that band and designated six higher frequency bands for microwave users that will be displaced by PCS.

It also proposed setting aside two frequencies for a new low-earth orbit (LEO) system that will support low-cost, two-way voice, facsimile and data services worldwide. The frequencies suggested are 1.61 GHz to 1.6265 GHz and 2.4835 GHz to 2.5 GHz.

PCS technology, which specifies use of a completely digital network architecture, will support communications within buildings and across cities in competition with wireline local telephone companies and cellular carriers.

The LEO satellite system, which would consist of about 70

low-flying satellites, should lead to the availability of less expensive satellite services, according to Tom Stanley, the FCC's chief engineer.

The low orbit allows for use of low-powered satellites and receivers, meaning the units can be lighter, smaller and, consequently, less costly.

Additionally, the low orbit will reduce signal transmission delay, making the system more suitable for voice and data communications than traditional satellites, which have a noticeable and annoying propagation delay.

New microwave home

Besides setting aside frequency for the two new services, the FCC's proposal to designate radio bands for displaced microwave users may do more to hasten the advent of PCS than any other decision. When the FCC last year indicated it was considering the 1.8-GHz to 2.2-GHz band for PCS, microwave users employing systems in those frequencies launched a bitter battle to keep their spectrum.

The fight has reached a high enough pitch that Sen. Ernest Hollings (D-S.C.) recently introduced language into the FCC's funding bill to prevent the agency from moving the microwave users for eight years. If Congress gets involved, it could significantly delay the introduction of PCS.

(continued on page 28)

AMIS specifications key to voice mail networking

By Tom Fermazin
Special to Network World

Imagine your firm with multiple locations and several voice mail systems, all purchased from different vendors. Now imagine trying to forward a voice mail message from one system to another.

ANALYSIS

The Coca-Cola Co. found itself in this situation in 1987 with systems made by Rolm Co. and VMX, Inc. and with no way to forward messages between the two. After talking with both vendors and other users, the soda company soon discovered that the problem was not unique to Coca-Cola.

From this revelation grew a user/vendor group in January 1988 that consisted of large voice mail users — including Coca-Cola, Eastman Kodak Co., Gener-

al Electric Co. and Johnson & Johnson — as well as all the major voice mail system vendors.

The consortium became known as the Audio Messaging Interface Interchange Specification (AMIS) group. Its charter was to develop a specification that vendors could adopt in order to allow dissimilar voice mail systems to exchange messages.

With the help of Hatfield Associates, Inc., a Boulder, Colo., consulting firm, two specifications were published in February 1990. The first was designed to work over analog lines, while the second is a digital specification for users with high volumes of inter-system traffic.

The analog specification supports several basic messaging functions such as sending, receiving and replying to voice mail messages. The digital specifica-

(continued on page 28)

Regulatory Update

Bell Atlantic Corp. last week agreed to let Metropolitan Fiber Systems, Inc. (MFS), an alternative access provider, locate equipment in its central offices on a trial basis.

Bell Atlantic will allow MFS equipment into three Pennsylvania central offices serving Philadelphia and Pittsburgh. Bell Atlantic will experiment during the trial to determine whether it is more feasible for MFS to locate its equipment inside the central office or at a nearby location connected to the office via a dedicated link.

Once the equipment is installed, MFS will be able to pick up and carry traffic from any building served by the central office. MFS and other alternative access providers are currently limited to serving buildings linked to their bypass net. MFS picks up customer traffic and delivers it to the long-distance carrier.

The agreement was struck to resolve a complaint MFS had filed against Bell Atlantic with the Pennsylvania Public Utility Commission. However, the collocation issue is a controversial one in many states. The Federal Communications Commission is currently trying to determine how to establish rules that enable rival carriers to collocate equipment with the Bell companies. ☐

AT&T introduces int'l fax service for small and midsize businesses

By Bob Wallace
Senior Editor

MORRISTOWN, N.J. — AT&T recently introduced a facsimile service that reaches more than 200 countries, providing a less expensive alternative to international direct-dial calling services for small and midsize users.

The service, dubbed AT&T FaxLine, is structured so that calls no longer than three minutes will almost always cost less than those under the carrier's basic direct-dial international rates.

Ray Butkus, AT&T's director of Business International Services unit, said it takes about 30 seconds to send a one-page

fax and less than three minutes to transmit three pages.

FaxLine is intended for users that do not generate the required minimum voice or data traffic for calling plans with volume discounts.

Typically, about one-third of the calls to foreign countries are fax calls, he said, noting that Japan has the highest proportion of fax to voice calls.

Pricing methods differ

According to AT&T, existing international long-distance services were priced

primarily for voice telephone calls, with a higher rate for the first minute and a lower rate for each additional minute or fraction of a minute.

With FaxLine, users pay a flat per-minute rate for each destination or country, which can be substantially lower than the first minute rate under AT&T's Business International Long Distance service. As a result, faxes that take as long as three minutes to send will almost always cost less using FaxLine.

For example, a fax that can be sent in
(continued on page 28)

User pushes carriers for details on SMDS

continued from page 21

nies do not deploy the service beyond their initial commitments. Most telephone companies have announced plans to offer SMDS in a few cities and deploy it further based strictly on customer demand, the same tack they took with ISDN.

"The telcos have to understand that users won't fully commit to SMDS as part of their long-term network strategy until they see how widely the service will be available," said Tom Nolle, president of CIMI Corp., a Voorhees, N.J., consultancy.

Nolle, who recently completed a survey of 167 users to measure SMDS interest, stressed that there are countless users throughout the country that are waiting to use it. He said the telephone companies have been slow to roll the service out for one main reason.

"The telcos want to know how much user demand there is for SMDS before they make major capital expenditures on switches that can offer SMDS," Nolle said. "Unlike ISDN, there are no switches in place that can be upgraded or modified to offer SMDS."

But things are looking up. Bell Atlantic just recently filed a general tariff to offer SMDS here — a move that Horst says has been a long time coming.

Bell Atlantic is perhaps the most aggressive RBHC in terms of tariffing SMDS in its region. The carrier has already filed tariffs for SMDS in Virginia and Maryland, and plans to file them in New Jersey and Washington, D.C. by year end.

Some RBHCs, such as Nynex Corp., have opted to make frame relay their flagship switched data service and have no immediate plans to offer SMDS — a situation that concerns Horst.

"We have offices in Boston that are quite interested in SMDS, but it looks like Nynex is putting all of its time and money into deploying frame relay in New York and Massachusetts," he said. "I'm really not sure what course of action to take in those states."

Other users, such as Temple University here, possibly could have been using SMDS if Bell Atlantic had tariffed the service earlier.

"We've been interested in SMDS for a long time," said Gene Kwatney, a network manager at Temple. Temple currently uses T-1s to network its five Philadelphia campuses and hopes SMDS will provide a cost-effective alternative. "SMDS would enable us to create a cloud over Philadelphia under which everything would be connected on an [on-demand] basis." ■



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ENTERPRISE APPLICATIONS

CLIENT/SERVER AND ENABLING SOFTWARE: DISTRIBUTED DATABASE, MESSAGING, GROUPWARE AND IMAGING

Worth Noting

“**W**hat’s the potential for groupware? By next year, half of the 100 million PCs in the world will be connected to a network.”

Jim Manzi
President, chairman and chief executive officer
Lotus Development Corp.
Cambridge, Mass.

Store & Forward

The competition is heating up in the market for Microsoft Corp. Windows-based electronic mail packages.

Futurus Corp., a groupware supplier based in Atlanta, is actually giving away the Windows-based E-mail component of its Futurus Team DOS/Windows Combo groupware software. Futurus is betting that the use of its E-mail by Windows users will help it win over DOS users that also need groupware productivity software.

For more details, contact Futurus at (404) 392-7979.

Another electronic mail supplier, **Beyond, Inc.** of Cambridge, Mass., last week announced that BeyondMail for Windows Release 1.0/MHS is now available. BeyondMail for Windows includes features based on Beyond’s rules and forms technology, which allows users to build a range of mail-enabled applications that employ special filtering or routing mechanisms.

BeyondMail for Windows Release 1.0/MHS is priced at \$995 for a 10-user license. The remote access edition is available for \$295.

To obtain more information, contact Beyond at (617) 621-0095, Ext. 234. **Z**

Lotus gives users a look at Mac client for Notes 3.0

Will ship with Notes offering at the end of this year.

By Margie Wylie
Senior Editor

BOSTON — MacWorld Expo show-goers here got their first gander at a pre-beta version of Lotus Development Corp.’s Notes client for the Macintosh.

Due to ship with Notes 3.0 by year end, the software will let Macintoshes access databases stored on IBM OS/2-based Notes servers, as well as exchange messages with Windows and OS/2-based Notes clients.

But as one passerby at Lotus’ booth pointed out, Macintosh users today can exchange electronic mail with Notes users through Lotus’ cc:Mail for the Macintosh using a gateway that Lotus sells. “And that’s all we need,” he said.

For those who want or need to be more integrated into Notes’ custom application environment, however, the \$495-per-user client should fit the bill.

Like Windows and OS/2 clients, the Macintosh client lets users create, edit, sort and store Notes documents and exchange messages with other Notes users.

Macintosh users, however, will not be able to administer the Notes server, which can only be controlled from either the server console or another OS/2-based computer.

The client lets Macintosh users view lists of Lotus databases and categorize them by characteristics, which they can overlay with an icon-based menu, called a Workspace.

“It isn’t very Mac-like, and it’s all pretty clunky,” said Craig Burton, principal analyst for The Burton Group, a consulting and research firm in Salt Lake City. “As a Mac user, I wouldn’t be all that thrilled with [the interface].”

Like other Notes clients, Notes for Macintosh is built on a foundation of Notes custom network services that cover everything from security to messaging. Lotus was forced to create these services itself when it designed Notes because they were not provided by operating services, either local or networked.

(continued on page 37)

Lotus offers ‘movie-like’ help feature

By Wayne Eckerson
Senior Editor

CAMBRIDGE, Mass. — Lotus Development Corp. has begun shipping a network version of its animated help feature for 1-2-3 that makes it possible to distribute “movie-like” help sessions from a shared server.

The network version of Multimedia SmartHelp for 1-2-3 for Windows enables personal computer users on IBM Network Basic I/O System and Banyan, Inc. VINES local-area networks to access an animated help screen to learn how to use specific features and functions of 1-2-3.

Unlike the stand-alone version that Lotus began shipping in June — which requires 12Mbytes of workstation memory and an attached CDROM drive — the network version requires only 1M

byte of memory and enables users to hang up to 28 CDROM drives off a dedicated server.

“The network version eliminates much of the expense and hassle of supporting animation within 1-2-3,” said Steve Barlow, multimedia product manager at Lotus here.

Lotus uses its CD/Networker software, implemented on the server, to exchange text and image files with network clients. The software accelerates data delivery from the server by caching as much as 128M bytes of frequently used information.

Len Yencharis, proprietor of the Yencharis Consulting group in Massapequa, N.Y., said it takes about four to six seconds for the network version of Multimedia SmartHelp to load animated files onto user workstations. The stand-alone version takes about one to three seconds.

Yencharis said the four- to six-second delay is adequate but will frustrate users. He also said the product — which comes bundled with a network version of 1-2-3 — costs about 20% more than the (continued on page 24)

Gupta shows its hand

New products or enhancements expected from Gupta Technologies, Inc.

SQLWindows	Version 4.0 of the client/server application development product will feature a full object-oriented programming environment, support for Microsoft Corp.’s Object Linking and Embedding, and new graphical options and reporting features.
Quest	Version 2.0 of the database query tool will add data management capabilities at the desktop and the ability to create forms-based applications, including data validation, query-by-example and integrated reports.
SQLBase	Gupta’s database server engine will receive performance and optimization enhancements through additional features such as stored procedures, two-phase commit and data compression.
Pegasus (code name)	A new workbench for multiprogrammer development projects. Pegasus encompasses tools automating application modeling, design, building and maintenance. It includes a multiuser data repository.

GRAPHIC BY SUSAN J. CHAMPENY

SOURCE: NETWORK WORLD

Gupta to extend its connectivity options

Database, development, query tools get hooks into new environments; firm outlines future plans.

By Timothy O’Brien
West Coast Bureau Chief

MENLO PARK, Calif. — Gupta Technologies, Inc. has taken steps in recent weeks to expand the connectivity options for its application development and query tools, and last week outlined its plans for some new and enhanced products.

Among recent announcements, Gupta pledged support for Microsoft Corp.’s Open Database Connectivity (ODBC) interface and said it will provide links to IBM’s Application System/400 and Informix Software, Inc.’s databases. The company also plans to introduce a new multiprogrammer workbench product code-named Pegasus and upgraded versions of its existing SQLWindows, Quest and SQLBase products.

Database accessibility

Gupta’s connectivity strategy calls for making all industry-standard databases accessible to users of its Microsoft Corp.’s Windows-based client/server application development environment as well as giving all Windows users the ability to access its SQLBase SQL engine.

Toward that end, Gupta will offer new SQLRouter software that provides users of its SQLWindows application development environment and its Quest graphical query tool with access to AS/400 and Informix databases.

Gupta already offers connectivity software for IBM’s DB2, Oracle Corp.’s Oracle Server, Sybase, Inc.’s SQL Server and other leading databases in its SQLNetwork software that provide connectivity for products such as SQLWindows or Quest.

In addition, Gupta will support Microsoft’s ODBC, which will make it easier for users to develop Windows-based client/server applications that can access a broad selection of back-end databases.

By releasing an ODBC driver for its SQLBase, Gupta will increase the number of applications users can buy that work with the database server. Currently, there are about 100 third-party front ends that work with SQLBase through Gupta’s own application program interface (API).

Last week, Gupta said it and Hewlett-Packard Co. will jointly develop ODBC drivers for HP’s AllBase/SQL and TurboImage databases. With this interface, any ODBC-compliant Windows application will be able to access information in the HP databases.

The two companies chose to work together on ODBC because they have already developed the AllBase/SQL PC API, which provides access to HP databases from the version of SQLWindows that HP markets.

On the horizon, Gupta has a (continued on page 24)

Gupta to extend its connectivity options

continued from page 23

new product as well as major upgrades to two existing products, which are scheduled to be beta-tested soon and could be available as early as next year. The company is also planning a new release of SQLBase, which is not expected until later in 1993.

Gupta's Pegasus provides needed support for corporate development teams.

The product will provide a centralized, multiuser data repository and uses a build-

ing block approach to development based on reusable program and screen components.

Version 4.0 of SQLWindows is expected to be fully object-oriented and include support for the Microsoft Object Linking and Embedding (OLE) facility. SQLWindows 4.0 will give users the option of using either the existing SAL language development environment or the new object-oriented facilities.

New Quest version

The next release of Quest, Version 2.0,

will have enhanced personal data management capabilities, the ability to create forms-based applications that include data validation, query-by-example and integrated reports, as well as new security and control features for large installations.

Finally, a new version of the SQLBase database engine will support two-phase commit, stored procedures, data compression and a new facility that reduces net traffic.

Initially, SQLRouter for AS/400 and for Informix will provide connectivity for applications developed using SQLWindows

with support for Quest to follow at a later date. SQLRouter for AS/400 will be available in September, while SQLRouter for Informix will ship later in the fourth quarter. Both products are priced at \$250 per client.

Gupta will include the ODBC API client driver for Windows as a standard feature of all SQLBase versions in the first half of 1993. Availability of other vendors' ODBC drivers in Gupta tools will be announced later. The ODBC driver developed for HP is also expected to be available in the first half of 1993. **■**



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Lotus' 'movie-like' help feature bows

continued from page 23

network version of 1-2-3, which will turn off many users strapped by tight budgets.

Great idea, but . . .

"[Multimedia SmartHelp] is a good concept, but the market isn't ready for it yet," Yencharis said. "It's priced too high, and it's too slow."

Lotus' Barlow said his company has invested two years and a considerable amount of money in the development of a fast and efficient way to stream files off CDROM disk drives.

Networked Multimedia SmartHelp vs. Stand-alone

	Networked	Stand-alone
Required workstation memory	1M byte	12M bytes
CDROM	Dedicated server can support up to 28	Each device requires a drive
Time required to load animated files	4-6 seconds	1-3 seconds
Cost	\$1,890	\$595

SOURCE: NETWORK WORLD

"We are the only vendor in the market that has built a good, fast animation engine," Barlow said. "Without our technology, it can take four minutes to load animation files from a CDROM drive onto a user workstation."

Peter Smalls, a CDROM network products manager for Lotus, said CD/Networker enables multiple users to simultaneously access data from the same CDROM attached to a server. If performance starts to degrade, users can attach a duplicate drive to the server.

He added that CD/Networker can provide about 10 users with simultaneous access to a single CDROM drive without noticeable delays.

Multimedia SmartHelp for Lotus 1-2-3 for Windows software comes with CD/Networker, a server edition of 1-2-3 for Windows and Multimedia SmartHelp software.

All three pieces of software come on an optical disk that can be loaded into a CDROM disk drive. The 1-2-3 software is uploaded onto the LAN file server, while the CD/Networker software is uploaded onto the CDROM server.

The network version of Multimedia SmartHelp is priced at \$1,895. This consists of an unlimited license for CD/Networker, the server edition of 1-2-3 and Multimedia SmartHelp. **■**



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INDUSTRY UPDATE

VENDOR STRATEGIES, MARKET TRENDS, ALLIANCES AND FINANCIALS

Worth Noting

The U.S. market for database and application servers is expected to more than triple from \$1.2 billion this year to \$4.4 billion in 1995, according to Forrester Research, Inc., a Cambridge, Mass., market research firm.

"We think this partnership plays well in the emerging client/server environment."

Steve Baxter
Vice-president of corporate marketing
Data General Corp.



DG teams with NeXT to offer Unix client/server nets

To resell NeXT workstations with AViiON servers.

By Bob Brown
Senior Editor

WESTBOROUGH, Mass. — Data General Corp. and NeXT Computer, Inc. recently announced an agreement under which DG will resell NeXT workstations with DG's own AViiON servers to meet users' client/server network needs.

The companies also said they will cooperate on the development of client/server products, possibly including applications, but declined to provide details.

Initially, DG and NeXT will focus on providing Unix-based hardware platforms for database-driven client/server applications, said Steve Baxter, DG's vice-president of corporate marketing.

DG's AViiON servers support relational databases from market leaders such as Oracle Corp. and

tem, Baxter said.

"Rapid software development, or prototyping, and the integration of multimedia has gone way up on the priority list of the MIS managers we talk to, and that's what they'll get from NeXTSTEP," Baxter said. "But they

Tying DG and NeXT machines into client/server networks should be straightforward.



still need access to high-performance servers and the industry-standard databases on them to run client/server applications. That's why we think this partnership plays well in the emerging client/server environment."

DG plans to port NeXT's NetInfo network administration software to its AViiON servers by year end, he said. NetInfo allows net managers to manage desktop computers, file systems and other resources on Unix networks.

Since DG and NeXT machines already support many of the same communications protocols, tying them together into client/server networks should be fairly straightforward, Baxter said.

Both companies declined to comment on any financial matters regarding the relationship.

NeXT is a Redwood City, Calif., workstation maker founded by Steve Jobs, a cofounder of Apple Computer, Inc. **Z**

DG plans to port NeXT's NetInfo network administration software to its AViiON servers.



Sybase, Inc., Baxter said. NeXT recently unveiled its new Database Kit, which is designed to enable users to speed the creation of client/server applications, he added.

The vendors plan to help users build custom client/server applications using NeXT's NeXTSTEP object-oriented operating sys-

Motorola, BT share in video chip project

Motorola to manufacture, sell the chipsets; BT plans to integrate them into future video offerings.

By Bob Brown
Senior Editor

BT and Motorola, Inc. last week announced plans to jointly develop a chipset that will make it possible to add support for multimedia applications to products such as personal computers.

BT and Motorola will share their respective expertise in videoconferencing and semiconductor manufacturing to essentially put a video coder/decoder on a chipset. Motorola will make and sell the chipsets, while BT will incorporate them into future video communications products.

The chipsets, which will not be available until 1994, will handle about six billion instructions per second, support the major full-motion video and still-image standards, and sell for about \$100 each in volume, said Ron Katchinoski, director of marketing at Motorola's MOS Digital-An-

alog Integrated Circuits Division in Austin, Texas. They will be used in products that support applications such as desktop videoconferencing and real-time sharing of computer files, including spreadsheets, he said.

BT and Motorola are pitching their chipset to IBM and vendors of IBM Personal Computer AT-compatibles that are planning to build videoconferencing and multimedia boards for their systems, according to Roger Noble, business development manager for BT Visual and Broadcast Services in London.

Application developers

BT and Motorola plan to start visiting software developers in an attempt to interest them in building applications that take advantage of the chipset, Noble said.

Analysts said BT, for the most

(continued on page 28)

NET FINANCIALS

General DataComm Industries, Inc., a Middlebury, Conn., multiplexer maker, announced fiscal 1992 third-quarter revenue for the period ended June 30 of \$50.3 million, up 8.9% from the same period last year. The firm earned \$621,000 in the quarter, compared to the \$1.5 million quarterly loss last year, which included a \$1.1 million restructuring charge.

Octel Communications Corp., a Milpitas, Calif., vendor of voice processing products, posted revenue for its 1992 fiscal year ended June 30 of \$188.8 million, up 18% from last year. Earnings were \$21.4 million, 21% better than the previous year. In the fourth quarter, Octel had revenue of \$53.3 million, up 14% from \$46.6 million last year, and earnings of \$6.9 million, a 14% increase.

Systems Center, Inc., a Reston, Va., net management system vendor, recently reported second-quarter revenue of \$31 million, up slightly from revenue of \$30.3 million in the quarter last year.

The firm was socked with about a \$16 million loss for the quarter, compared to \$1.43 million in earnings last year. This year's second-quarter loss included an \$11.5 million charge for severance pay, office closings and the sale of the company's IBM Application System/400 and Unix utility products.

Telematics International, Inc., a Fort Lauderdale, Fla., packet switch vendor, reported revenue for the second quarter of \$16.6 million, down about 3.2% from the second quarter last year. Earnings were \$1.98 million, up about 53%.

(continued on page 28)

People & Positions

Richard Santagati was named president and chief executive officer of **Artel Communications Corp.**, a Hudson, Mass., wiring hub vendor. Santagati has been a member of Artel's board of directors since 1987. Andrew Knowles, who was acting president for the past year, is stepping down but will remain on Artel's board.

3Com Corp., a Santa Clara, Calif., maker of hubs, adapter cards and other net equipment, has named **Randy Heffner** vice-president of manufacturing for the company's Network Adapter Division. He will be responsible for directing 3Com's network adapter manufacturing operations in Santa Clara and Blanchardstown, Ireland.

He replaces Jack Moses, who left 3Com for a startup venture.


Carl Masi, formerly vice-president of corporate marketing at Unisys Corp., has joined **PictureTel Corp.** as senior vice-president of marketing and business line management. He will be responsible for all corporate marketing and strategic planning functions. Masi will report to Norman Gaut, PictureTel's president, chairman and chief executive officer.

(continued on page 28)



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IBM

AT&T intros int'l fax service

continued from page 22

less than one minute to France would cost \$1.71 during the business day using AT&T's basic international service; while using FaxLine, the same transmission would cost only \$1.18, a 31% savings. AT&T said the same fax sent to Hong Kong would result in a 47% savings.

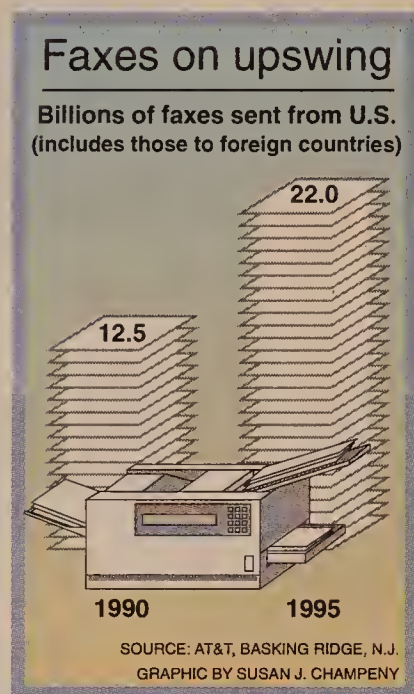
Calls to Canada and Mexico are priced according to multiple mileage bands, while fax calls to all other destinations are billed according to AT&T's flat rate for that country.

Except in a few cases, AT&T bills the calls under a prime or off-prime calling plan.

FaxLine works with both CCITT Group III and Group IV fax machines.

The service will become available Aug. 17, pending Federal Communications Commission approval.

The offering has a onetime \$10 service establishment charge, which will be waived for customers ordering the service before Feb. 17 and having it installed by March 31. The service also carries a \$5 monthly minimum usage fee. **■**



People & Positions

continued from page 25

WilTel Communications Systems, Inc., the Houston-based equipment and maintenance arm of long-haul carrier WilTel, has named **Henry Hirsch** as president and chief operating officer.

Hirsch replaces William Merritt, who resigned to pursue outside interests.

Taylor Pohlman has been named vice-president of customer service at **Sybase, Inc.**, an Emeryville, Calif., vendor of relational database software. He will be responsible for the company's worldwide service and support organization, which includes technical support, education, customer service and consulting.

Previously, Pohlman was director of quality and strategic planning at Apple Computer, Inc. **■**

Motorola, BT share in project

continued from page 25

part, is less interested about being a big player in the videoconferencing and multimedia equipment market. The carrier is more interested in promoting the use of new bandwidth-intensive applications that could result in more traffic on its network.

Although sample chipsets will not be available until next year and products based on the chips are not expected until at least 1994, analysts said the involvement of BT and Motorola in the emerging multimedia industry will help speed the delivery of applications to market.

"Everybody will flood the market with these kinds of chips right around the '94 time frame, and that will enable multimedia and all the video applications [to be sent] across the net," said Al Lill, a vice-president at Gartner Group, Inc., a Stamford, Conn., market research firm. "Today's products are just too expensive."

Desktop videoconferencing systems today typically cost between \$8,000 and \$10,000, Lill

said. The BT-Motorola chipsets will help lower the cost of such offerings to less than \$1,000.

Lower prices will result not only because of the technology being employed by BT and Motorola — whose chipset will consist of just three chips — but also because of growing competition in the chip market. AT&T, Intel Corp. and Texas Instruments, Inc. are among those with plans to enter the market.

In August 1990, Intel detailed plans to build a chipset called the V3 in conjunction with PictureTel Corp. Had Intel delivered the V3 by now, as originally planned, the BT-Motorola effort would seem far less interesting, Lill said. Intel is now hoping to release chips by year end, which means that market should start heating up next year, he said.

Although PictureTel has inked a five-year chip development agreement with Intel, it is free to use any vendor's chips, according to a PictureTel spokesman. PictureTel will use the new "video engines" to power videophones, PC adapter cards and a new generation of room conferencing systems, he said. **■**

AMIS specs key to networking

continued from page 21

tion includes more functions such as sender and recipient identifications, time stamping and a common digitized voice encoding algorithm that allows messages to be transmitted more quickly than the analog method.

To date, most of the major voice mail vendors have added the analog AMIS capability to their products.

David Ladd, executive vice-president of VMX, said user demand for digital AMIS support has not been as strong.

VMX has tested its analog AMIS connectivity with systems by AT&T, Rolm, Octel Communications Corp. and Northern Telecom, Inc. Further development of AMIS will be largely driven by user demand, Ladd said, adding that most users are interested in analog AMIS so that's where voice mail vendors will focus their efforts.

Intracompany links

While AMIS was originally created to solve the problem of communicating between dissimilar systems within the same compa-

ny, the real future of AMIS lies in its ability to help different companies communicate, Ladd said.

Just as Group III facsimile and, more recently, electronic data interchange opened the doors to interenterprise electronic communications, AMIS allows the full potential of voice messaging to be realized.

One of the strongest advocates of this extended messaging concept is Travelers Insurance Co., which is now testing an AMIS specification between its VMX and AT&T voice mail systems.

Gus Bender, second vice-president with Travelers Insurance's information services group, said his firm will begin expanding AMIS to its customers this fall. "In the past, we've given some of our customers guest mailboxes on our systems. But they wanted to know why we couldn't network our systems with their systems so they wouldn't have to log in and check two different systems.

The insurance firm is looking beyond its own corporate boundaries and is using the power of voice messaging to provide better

service to its customers.

Bender predicted an explosion in the use of voice messaging as companies realize the potential of interenterprise networking. He says growth forecasts of voice mail usage by various research firms are low because they have underestimated the demand that will arise when companies extend voice messaging networks beyond their corporate boundaries.

The future of AMIS looks bright. Technically, though, AMIS is a specification, not a standard. No international standards body has officially recognized it yet. In a world where global communications is becoming the norm, this deficiency must be rectified.

In addition, new capabilities such as directory services must be added, and the capabilities of both analog and digital AMIS specifications must be enhanced. This appears likely as the AMIS group continues to meet on a regular basis.

Fermazin is a staff planning coordinator with Chicago-based Amoco Corp., a onetime AMIS member company and longtime AMIS supporter.

FCC makes way for PCS

continued from page 21

Microwave is used in private voice and data networks and to support applications such as monitoring oil and gas pipelines as well as electric delivery systems, and supporting public safety communications.

Users say moving the networks will be too costly and could erode the reliability of their systems.

The FCC had suggested moving the microwave users to higher frequencies, but it had laid out no specific plan until now. The commission has targeted six higher frequency bands for microwave users — 3.7 GHz to 4.2 GHz; 5.925 GHz to 6.425 GHz; 6.525 GHz to 6.875 GHz; 10.565 GHz to 10.615 GHz; 10.630 GHz to 10.680 GHz; and 10.7 GHz to 11.7 GHz.

These frequencies are currently used primarily in long-distance carrier microwave and satellite networks. Microwave users would become co-primary users, meaning they would be protected from interference from existing and new users.

Stanley said there is enough spare spectrum in these areas to accommodate microwave users.

Sean Stokes, staff attorney for the Utilities Telecommunications Council (UTC), which has pressed the FCC for specific frequency proposals for displaced microwave users, said the deci-

sion was a step in the right direction. Until now, the UTC and many others with microwave interests have complained that the FCC was railroading them out of their spectrum with little concern for where they would go.

Stokes said microwave networks currently use between 800 KHz and 1.5 MHz of spectrum. In higher frequencies, there are unused blocks of spectrum ranging from 5 MHz to 30 MHz each. The FCC has proposed subdividing those bigger blocks for use by microwave users.

Stokes said it is not clear whether there is enough unused spectrum to accommodate all microwave users, but more importantly, he said users are worried about the logistics of moving into new bands. Microwave users are

most interested in the 4-GHz band because it poses fewer reliability concerns than higher bands, he said, but that band is already crowded.

"It's a coordination nightmare trying to get in that [4-GHz] band," Stokes said. One reason is that there are a lot of users, but another is that many of the users are individual satellite dish owners. Microwave users moving into that frequency would have to work with every local jurisdiction — each with its own regulations — in order to put a network there.

Regardless of where the microwave users move, the FCC has said it will establish procedures for the PCS providers to pay for the cost of moving the microwave users. **■**

Net Financials

continued from page 25

VideoTelecom Corp., an Austin, Texas, vendor of videoconferencing gear, reported revenue of \$6.3 million for the second quarter ended June 30, more than triple the revenue of \$1.8 million in the second quarter last year.

The company has rebounded from a loss of \$1.1 million in the similar quarter of last year in order to turn a profit of \$522,000 this year.

VMX, Inc., a San Jose, Calif., voice processing company, post-

ed fourth-quarter revenue for the period ended June 30 of \$19.8 million, up 23% compared to the fourth quarter last year.

Earnings for the company rebounded to \$1.9 million from \$221,000.

For the fiscal year, the company reported revenue of \$71 million, which is a 25% increase, and earnings of \$4.7 million, reversing a loss of \$4.2 million last year.

Pat Howard, VMX chief executive officer, attributed the company's comeback to the good performance of several new products and its attention to keeping costs down. **■**

MANAGEMENT STRATEGIES

MANAGING PEOPLE AND TECHNOLOGY: USER GROUPS AND ASSOCIATIONS

Worth Noting

Deciding if and when to buy the latest network software packages "takes some real management skills. You're like a stockbroker, figuring out when to buy, sell or hold. But in the IS business, instead of putting your client's cash on the line, you're putting the business. It's a very serious thing."

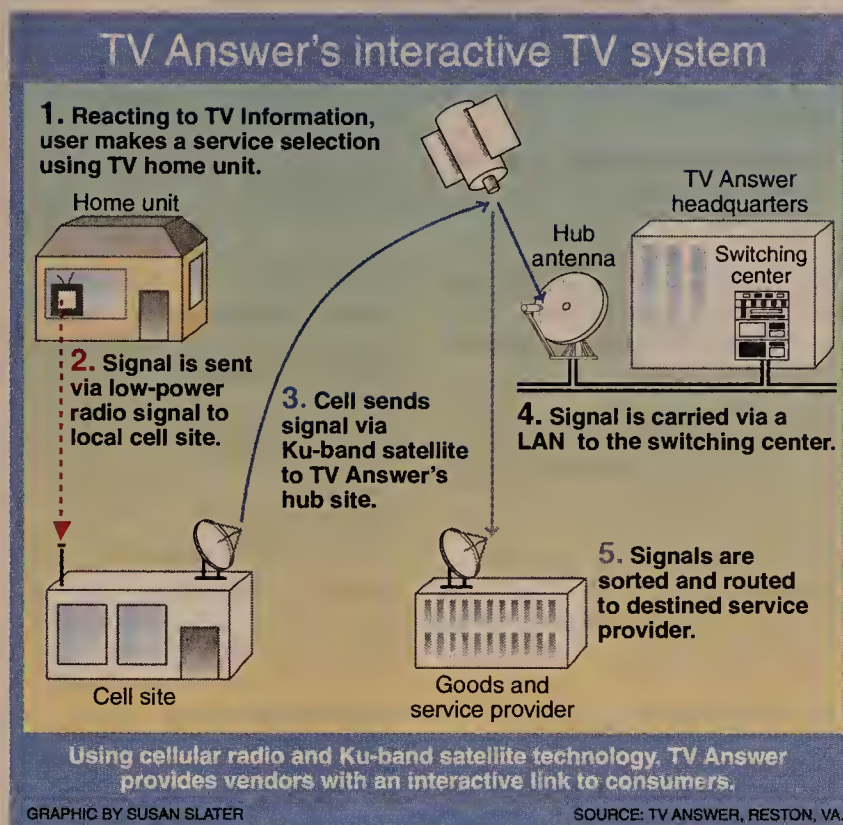
Cheryl Currid
President
Currid & Co.
Houston

Manager Minutes

The **Help Desk Institute** is holding "Call Management for the Help Desk: Evolution of the Help Desk" in Palm Springs, Calif., Sept. 13-16. The conference will feature a variety of speakers sharing their help desk operation experiences.

Featured speakers include Diane Mastro, manager of information systems for the Office Help Center at New York's State Office of Mental Health, and Maureen Torncello, director of customer support at the same office, who will describe how they implemented their call management and automated problem-tracking systems. In addition, Mike DeGennaro, supervisor at Chevron U.S.A., Inc., will demonstrate a "no-tech" approach to choosing help desk software and hardware.

The conference costs \$695 for Help Desk Institute members and \$795 for nonmembers. For more information, call the institute at (800) 248-5667. **Z**



MANAGEMENT INSIGHTS

BY ERIC SCHMALL

Good diagnosticians are vital to your net's health

Diagnostic skills, or lack of them, make all the difference in this and other businesses.

We will not put up with a doctor who can't seem to pinpoint the cause of a persistent malady, and neither should we tolerate incompetent diagnostic methodologies from vendors or our staff. Being able to assess a problem, pinpoint the cause and propose effective solutions is a talent that any network manager should both treasure and reward.

In recruiting and promoting technical and engineering staff, we should emphasize the fact that diagnostic talent is a core competency, one that an individual must possess in order to succeed in this field. We need people who become energized at the thought of untangling a mysterious knot in the net and who show inexhaustible resolve in conquering a nettlesome problem.

But even this set of skills alone won't ensure success. Much like a physician, a good di-

agnostician has to possess a subtle "bedside manner" when dealing with customers. Watch out for those who want to talk endlessly about potential causes and solutions.

Once you can demonstrate that your technical staff possesses competent diagnostic talents, you can easily justify



the necessary funding to procure the hardware and software for ensuring their future problem-solving success. In turn, if you can build a shop that has a reputation for having up-to-date equipment, you will attract

the talent you're seeking. But a network shop comprising savvy diagnosticians and state-of-the-art equipment has no chance of beginning, much less growing, unless you recognize and consciously recruit people who have the skills and personal traits found in these unacknowledged heroes. **Z**

Schmall is director of telecommunications at an insurance holding company.

Interactive TV gains support in industry

Companies will use emerging wireless technology to mass market goods and services to consumers.

By Joanne Cummings
Senior Writer

RESTON, Va. — JCPenney Company, Inc., CheckFree Corp. and Meridian Bancorp, Inc. are just a few of the companies lining up behind TV Answer's emerging interactive television technology.

The two-way wireless technology represents to these and other companies a new way to mass-market products and services, enabling consumers to use their TV to do everything from banking and bill paying to catalog shopping.

Although the Federal Communications Commission has yet to license any services that use the TV Answer technology, which is based on cellular radio and satellite links, the commission is accepting applications in the New York metropolitan area this week. License applications will be accepted for the Chicago, Los Angeles and Philadelphia metropolitan areas Sept. 1-3.

Ultimately, TV Answer hopes to see licensees using its technology in every major metropolitan area. The company has already signed on several goods and service providers whose participation will be included with the technology to these licensees.

According to several of those companies that have signed on with TV Answer to provide goods and services, the new technology may offer an inexpensive way to reach a broad client base.

Mike Sapienza, vice-president of marketing for CheckFree, a Westerville, Ohio-based electronic bill payment firm, views the technology as "another way to get people to use CheckFree."

The processing system used for receiving and forwarding users' electronic bill payments is already in place to accommodate CheckFree's current customer base of personal computer and Macintosh users, and integrating interactive TV users with that system should be fairly inexpensive, Sapienza said.

"The front-end technology is not nearly as expensive as the back-end [processing system] for us," he said. "It will be an invest-

ment, but it will not be an onerous investment to the point where we'll be risking our whole business on it."

As envisioned by TV Answer, service providers such as CheckFree will communicate with consumers via cellular radio and satellite links (see graphic, this page). Goods and service providers will be linked to TV Answer's hub site at its headquarters here via Ku-band satellite.

Consumers watching TV will be able to respond to commercials tagged as interactive by using their home unit to superimpose a screen over the picture that tells them how to place an order or request more information. The request will generate a 218.5-MHz radio signal to a local cell site, which relays the signal to TV Answer's hub via satellite.

TV Answer's switching center, also at its headquarters, will sort the information according to its destination and then reroute the signal via satellite. If an answer is required, the same link can be used to respond to the consumer.

Because the service is TV-based, many companies said they think consumers will be more likely to take advantage of it than similar PC-based products.

"Some people like to sit in front of their PC and use a home banking service, like what we offer through Prodigy," explained Joseph Pendleton, vice-president of electronic banking at Meridian Bancorp in Reading, Pa. "But our feeling is that it's not one size fits all here."

Pendleton cited the Home Shopping Network as proof that providing services via TV can be successful. "The acceptance of television used in different ways is what we're homing in on."

Most companies also cited the fact that the service would provide a different, additional distribution service for their products. "We always look at technologies that offer other ways to get merchandise into the hands of the customer," said Duncan Muir, a spokesman for JCPenney in Dallas. "We have our stores and our catalog operations. [Interactive TV] is just another way." **Z**

TECHNOLOGY CONSORTIUMS

BY RUSSELL SHARER

Savvy users: Beware of technology forums

Today's evolving technologies are plagued by vendor consortia — groups that propose to shortcut the normal standards-setting process. They use an early implementation of a standard that promises interoperability among their products and guarantees a migration path to the finalized standard. But smart users will be wary of these groups and their claims.

Consortia began to appear in the mid-1980s as a vendor reaction to users' demands for open systems. After uniting, consortium members create a de facto standard in order to get a head start in capturing a share of an emerging market. By using a de facto standard, consortia pressure standards-making bodies such as ANSI and the Institute of Electrical and

Electronics Engineers, Inc. to disregard alternative and potentially better proposals in order to preserve users' investments.

How many of these efforts succeeded? Not many. The Corporation for Open Systems International has yet to convert the world to Open Systems Interconnection. The Open Software Foundation, Inc. (OSF) is smarting from confused statements recently made by Digital Equipment Corp. DEC originally

The most recent example of a failed effort is the Gang of Five.



said its future Unix releases would not be based on the OSF/1 operating system and later said OSF/1 would be the basis for one of its three strategic operating systems. Members of the Advanced Computing Environment initiative have yet to announce the range of Reduced Instruction Set Computing systems they set out to build.

The most recent example of a failed effort is the Gang of Five, a consortium that promoted a standard for using shielded twisted pair in Fiber Distributed Data Interface nets. In the fall of 1990, the group published a proposed standard known as the Green Book and submitted it to the Twisted Pair-Physical Layer Medium Dependent subcommittee of ANSI XT39.5. The Gang of Five spent its time promoting their document and reporting on its progress. Purchases would be safe, they said, because the accredited standard would look like the one in the Green Book.

The committee had other ideas. Deciding that users would be better served by a single standard supporting FDDI over both shielded and unshielded twisted pair, the committee recently dismissed the Green Book and selected an alternative technology. Users of Green Book-based products are in limbo because those products do not adhere to the emerging standard and it's unclear if they will ever interoperate with those that do.

Interestingly, the technology of another consortium — the Unshielded Twisted Pair Development Forum (UDF) — forms the basis for the emerging standard. However, instead of talking up their proposal, UDF's members spent weeks testing it to make sure it met FCC emission standards and offered a better bit error rate than what's called for in the FDDI specification. That testing helped UDF's proposal win acceptance.

The point? Think of the term "vendor consortium" as techno-speak for "Let the buyer beware." ■

Sharer is a principal at imageMakers, a Santa Barbara, Calif., firm that provides marketing consulting services to technology vendors.

NETWORK WORLD

Editor
John Gallant

Executive Editor
John Dix

Assistant Managing Editor — News
Paul Desmond

Senior Editors
Bob Brown — Industry Update
Jim Duffy — Data Net Architectures
Wayne Eckerson — Enterprise Applications
Bob Wallace — Global Services

Michael Cooney — Data Net Architectures
14701 Bentley Square
Centreville, VA 22020
Phone: (703) 830-8138
Fax: (703) 830-7963

Caryn Gillyooly — Local Networking
5423 Gladewright Drive
Centreville, Va. 22020
Phone: (703) 266-1537
Fax: (703) 266-1543

Senior Writers
Joanne Cummings — Management Strategies
67 Highgate Road
Marlborough, MA 01752
Phone: (508) 481-6061
Fax: (508) 485-5809
Maureen Molloy — Internetworks

Staff Writer
Skip MacAskill — Internetworks

West Coast Bureau
Timothy O'Brien
Bureau Chief/Enterprise Applications
Phone: (415) 771-3530

Margie Wylie
Senior Editor/Local Networking
2088 Union Street, Suite 2
San Francisco, Calif. 94123
Phone: (415) 771-4103
Fax: (415) 771-2817

Washington D.C. Bureau
Anita Taff
Bureau Chief/Global Services
Phone: (202) 879-6744
Ellen Messmer — Industry Correspondent
National Place
1331 Pennsylvania Ave. NW, Suite 505
Washington, D.C. 20004
Phone: (202) 879-6752

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Network World
161 Worcester Road
Framingham, Mass. 01701
(508) 875-6400
MCI Mail — 390-4868
Fax: (508) 820-3467
R.A.F. hot line:
(800) 622-1108, Ext. 487

USER ADVISORY PANEL

Laurie Bride
Manager, Communications Technology,
Boeing Computer Services

Roy Bruce
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EDITORIAL

FCC should follow N.Y.'s lead in setting net mutual aid plan

Owing to unprecedented pressure from customers and government, the local and long-haul carriers serving New York City are better prepared today to deal with a catastrophic net outage.

As you'll see in this week's Reader Advocacy Force (R.A.F.) story, the information sharing and mock disaster drills the carriers have participated in as part of New York's Mutual Aid and Restoration plan have prepared them to move more quickly should one of them encounter a major problem.

But the apparent success of the mutual aid plan — whether

it works can't really be determined until a disaster occurs — raises troubling questions.

Most importantly, why was it left to New York users to pressure carriers into creating the plan, and who is acting to protect the interests of other U.S. users? The reliability of carrier nets has become a critical issue in light of our growing reliance on ultra high capacity fiber facilities and fickle software systems.

The Federal Communications Commission, through its Network Reliability Council (NRC), should push for creation of a national mutual aid plan.

But that's not likely to happen soon. The FCC has been reluctant to even implement more stringent requirements for carriers to report outages, despite heavy pressure from user groups. And the impetus for a national mutual aid plan won't come from carriers, whose executives recently urged NRC to shelve discussion of such plans.

FCC Chairman Alfred Sikes counseled against tabling discussion, but it is unclear where the FCC stands on this issue. It's time for the commission to clarify its stance and force carriers to cooperate on a national basis in order to prepare for disasters. And network executives around the country should follow the lead of the New York user community and demand action. ■

NETWORK WORLD'S



READER ADVOCACY FORCE

OPINIONS

MACROSCOPE

BY JAMES KOBIELUS

Avoid chaos with document mgmt. and retrieval system

Networks have made it next to impossible for users to find the document they want when they want it. Differently formatted text, graphics and image files are often scattered across a myriad of computers, storage devices and directories on local and wide-area networks.

Document management and retrieval systems (DMRS) provide a path out of this chaos and are becoming as indispensable as electronic mail and printer sharing. Net managers should pay close attention to DMRSs because by the end of the decade, most users will be relying on them to retrieve any document from anywhere on the network.

So if you're not currently evaluating a network-based DMRS, you should be. You should also know that DMRSs will have a substantial impact on network design and operations, and the ramifications are wider than you might think.

First, DMRSs will revolutionize user interface design. Traditionally, users have been able to retrieve, read and revise documents only from within the originating application.

DMRSs, by contrast, provide a user interface that enables customers to retrieve documents created from within different applications by selecting them from an on-screen index. This interface provides content-oriented access to information across multiple applications, enabling users to retrieve documents based on their content or keywords.

This means that net managers implementing DMRSs will have to compile document indexes — databases that describe file attributes and contents. The index creation process can be automated to some degree for text-only files, as well as for document image files by using optical character recognition.

However, selecting key words when creating this index is still largely a matter of human interpretation. So firms may have to invest considerable resources in what could be a labor-intensive process.

You'll also have to wrangle with the thorny issue of standards for formatting text, image and other files. Evaluate DMRSs by their ability to view, edit and manipulate the most common file formats used at your firm, as well as their ability to set corpo-

structure.

Also, when using DMRSs, you should assume the role of a librarian who enforces checkout, usage and return policies — specifically in the area of concurrent and serial access to shared documents.

Make sure your DMRS allows multiple versions of a document to be present on the network while clearly identifying which is the latest.

When several people edit the same document concurrently, their changes should be saved to different versions to ensure that one another's work is preserved, and there should be a means for reconciling multiple versions.

Failure to retain separate versions can lead to a situation where two or more people are overwriting the same document simultaneously, thus obliterating one another's work.

Your DMRS should also facilitate backup and archiving of documents to near-line storage, such as optical jukeboxes and off-line storage, based on file type, usage frequency and other system- and administrator-defined parameters. The DMRS should also allow administrators to transfer files between storage devices across the network so that end users see a single virtual distributed storage system.

There's no excuse to postpone evaluating DMRS technologies. You should be keeping your networked documents accessible and as well organized and cataloged as the printed documents in your libraries and filing systems. ■

Kobielus, a contributing editor to Network World, is a telecommunications analyst with Fairfax, Va.-based Network Management, Inc., a local- and wide-area network systems integrator.

If you're not currently evaluating a network-based DMRS, you should be.



rate file format standards if none exist. Prepare to spend some time and money to convert oddball formats to the corporate standard.

If you're serious about building on-line document libraries, start evaluating the economies of scanning paper documents into optical, network-accessible storage.

In addition, consider making your network "document friendly" by implementing distributed file systems such as the Unix-based Network File System, the Andrew File System used in the Open Software Foundation, Inc.'s Distributed Computing Environment or Microsoft Corp.'s upcoming Microsoft Windows New Technology environment.

These systems make it possible for a distant volume to appear as a logical extension of a user's own drive/directory

TELETOONS

BY FRANK AND TROISE



LETTERS

Who's in charge of the PUC?

I'm writing regarding the opinion article "Let's cut the strings on state 'puppet' utility commissions" (NW, June 29) by James Carlini and the response "Texas PUC not puppeteer" (NW, July 20), a letter from Fred Goodwin.

In my opinion, Carlini hit the nail on the head, although the term "puppet" may be somewhat erroneous. I think a more appropriate term might be "private." This is particularly true in Texas, contrary to what Goodwin of Southwestern Bell Telephone Co. stated in his letter.

The problem, as pointed out by Carlini is that the public utility commission (PUC) comprises politically appointed people who are unknowledgeable of the communications technology and do not realize

what it really requires and costs to provide service. Because the PUC staff is undersized and handles telecommunications as well as other utilities, it is usually unable to provide adequate education and support to the PUC board.

Service costs are not based on the cost of providing the service but rather on the ability of those desiring the service to pay. Services such as dual-tone multifrequency (DTMF) dialing is an optional service for which telephone companies charge users, but rotary, or pulse, dialing is not.

It can readily be pointed out that rotary dialing service is, in fact, more costly for the phone companies to provide than DTMF. In addition, many services are strictly software-based, making their provision (continued on page 37)

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PEER-TO-PEER LAN

OPERATING SYSTEMS

Prepping peer NOSes for the enterprise

Just a few years ago, buyers in the market for peer-to-peer local-area network operating systems were fixated on such issues as memory constraints, ease of use and pricing.

Although these issues are still important considerations for selecting a peer network operating system (NOS), users today are placing greater emphasis on connectivity to corporate nets as they begin to focus on integrating peer LANs into the enterprise network.

Besides connectivity, sophisticated services such as security and directory services are becoming high-priority items on users'

shopping lists. These capabilities provide peer NOS users with the same types of services available to other LAN users.

Unfortunately, analysts warn that vendors are lagging in their ability to tie peer LANs to larger corporate nets, leaving end users with limited access to LANs and hosts.

CHART • GUIDE

A Buyer's Guide chart detailing peer-to-peer LAN operating systems can be found on page 34.

In addition to these factors, users should probe vendors for the availability of a range of features and functions, including LAN types supported; services such as electronic mail, file and print sharing; maximum number of nodes supported; and breadth of client workstation support.

Peer NOSes remain popular today because they give LAN-attached workstation users access to network services without having a dedicated server handling the task. Also, peer LANs provide added flexibility over their server-based counterparts because they allow any workstation to act as a file or print server.

Vendors are beginning to bow to user demands to integrate peer NOSes with corporate nets, but much work lies ahead.

"Our network has kept us running continuously for two years," says Art Gatenby, president of CSC Scientific Company, Inc., a quality-control test equipment manufacturer based in Fairfax, (continued on page 34)

By CARYN GILLOOLY

Peer-to-peer LAN operating systems

Company	Product	LAN support T = Token ring O = Other A = Arcnet Ap = AppleTalk E = Ethernet	Services P = Printer services O = Other E = E-mail F = File sharing	Maximum nodes	Maximum RAM for client (in K bytes)	Maximum RAM for client and server (in K bytes)	Operating system D = DOS 3.X DR = DR-DOS 6.0 W = Windows 3.0 O = Other	Standard features								Security features				Peripheral sharing M = Modems T = Tape drives O = Other	Packaged hardware L = LAN cabling N = Network interface cards O = Other	Warranty	Price	
								Disk caching	Error logging	On-line redirection of drives and devices	Dynamic node reconfiguration	Remote booting	Diskless booting	Global resource naming	Remote diagnostics	Other	Password expiration	Audit trail	Logon restrictions				Access privileges	Other
Artisoft, Inc. (800) 846-9726	LANtastic	E, O	E, F, P	300	12	40	D (1), W	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	O		90 days	\$990	\$2,499
	LANtastic/AI	A, E, T	E, F, P	300	25	55	D (1), W	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	O		90 days	\$990	\$2,499
	LANtastic for NetWare	A, E, T	E, F, P	300	74	102	D (1), W	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	O		90 days	\$499	\$499
CBIS, Inc. (404) 446-1332	Network OS-Plus	A, E, T, O	E, F, P, O	255	31	56	D, DR, W	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	M, T, O		6 months	NA	\$2,587 (2)
Hayes Microcomputer Products, Inc. (404) 840-9200	LANstep	A, E, T	E, F, P, O	255	(3)	22	D, W	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	T, O	L, N	90 days	\$990	\$2,180
Invisible Software, Inc. (800) 982-2962	Invisible Network	E	E, F, P, O	200	40	110	D, W	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	M, T, O	L, N	2 years	\$2,790	\$13,950
Moses Computers, Inc. (408) 358-1550	MosesAll	O	E, F, P	15	64	128	D, DR, W			✓	✓			✓	✓			✓	✓	T, O	L, N	1 year	\$990	NA
	PromiseLAN Fast	O	E, F, P	53	64	128	D, DR, W			✓	✓			✓	✓			✓	✓	T, O	L, N	1 year	\$1,495	\$7,475
	ChosenLAN	O	E, F, P	53	64	128	D, DR, W			✓	✓			✓	✓			✓	✓	T, O	L, N	1 year	\$1,674	\$8,370
Net-Source, Inc. (408) 246-6679	SilverNet 2.1	A, E	E, F, P, O	254	64	Varies	D, DR, W	✓	✓	✓	✓				✓		✓	✓	✓	T, O		1 year	\$990	\$1,999
	SilverNet Ethernet Edition	A, E	E, F, P, O	254	64	Varies	D, DR, W	✓	✓	✓	✓				✓		✓	✓	✓	T, O	L, N	1 year	\$3,000	\$15,000
	SilverNet Arcnet Edition	A, E	E, F, P, O	254	64	Varies	D, DR, W	✓	✓	✓	✓				✓		✓	✓	✓	T, O	L, N	1 year	\$1,500	\$7,500
Novell, Inc. (800) 638-9273	NetWare Lite Version 1.1	A, E, T	F, P	25	30	114	D, DR, W, O	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	T, O		90 days	\$790	NA
Performance Technology, Inc. (512) 349-2000	PowerLan 2.20	A, E, T	E, F, P	255	43	66.5	D, DR, W	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	T, O		90 days	NA	\$3,195 (2)
Sitka Corp. (800) 445-8677	DosTOPS 3.0	Ap, E	F, P, O	No limit	(3)	Varies	D						✓			✓			✓	M, T, O		90 days	\$995	\$49,750
	SunTOPS 3.0	Ap, E	F, P, O	No limit	Varies	Varies	O						✓			✓			✓	M, T, O		90 days	\$1,295	\$1,295
	MacTOPS 3.1	Ap, O	F, P, O	No limit	(3)	(3)	O						✓			✓			✓	M, T, O		90 days	\$995	\$49,750
Tiara Computer Systems, Inc. (415) 965-1700	10NET LAN Operating System Version 5.0	A, E, O	E, F, P	No limit	32	69	D, DR, W	✓	✓	✓	✓			✓		✓	✓	✓	✓	T, O	L, N	Lifetime	\$1,961	\$9,521
Webcorp (415) 331-1449	Web Network Operating System Version 3.0	A, E, T, O	E, F, P	900	(3)	(3)	D, W	✓	✓	✓	✓	✓	✓	✓	✓		✓		✓	M, T, O		90 days	\$765	NA

(1) DOS Version 3.2 not recommended.

(2) Vendor does not offer a 10- or 50-node package. Price quoted is for maximum configuration.

(3) Maximum RAM depends on whether client supports conventional or extended DOS memory.

NA = Not applicable

SOURCE: NETWORK WORLD

(continued from page 33)

Va. CSC is operating its business on a 16-node network from Webcorp.

Gatenby says his Ethernet LAN is running an accounting system, a telemarketing application, an automatic letter-generating application, as well as more standard applications such as a spreadsheet and database.

"With peer-to-peer, you have access to anything," he says. "You're also not committed to one huge machine that everyone has to use. On our network, if one machine goes down, it's almost as though it didn't" in terms of the effect it has on the rest of the network.

Marsha Thomas, operations manager at Roanoke Capital, Ltd., a venture capital firm based in Seattle, says her company settled on peer NOSes for the flexibility they provide over server-based NOSes.

"We needed the ability for anybody to be in any program at any time," Thomas says. "Peer to peer allowed the type of sharing

that dedicated systems don't allow. That flexibility was crucial to us."

While every peer NOS should offer some form of print and file sharing services, high-end systems typically provide sophisticated connectivity, security and directory services, as well as a broad array of standard features and basic functions.

Products such as Artisoft, Inc.'s LANtastic, Tiara Computer Systems, Inc.'s 10Net LAN Operating System and Webcorp's Web Network Operating System fill out the high end, while Moses Computers, Inc.'s MosesAll! and Novell, Inc.'s NetWare Lite serve the low end.

High-end peer NOSes are often in demand at remote offices and work groups within a large corporation. While these users are looking for an inexpensive means to share data locally, the ability to connect to other corporate departments using server-based LANs or even host-based systems is a high priority. This is important because users on peer

LANs may need to pass data to applications on other LANs or host systems.

Because users are looking for basic print and file sharing services for as many as 25 users, pricing becomes the primary buying criterion at the low end of the market.

The connectivity factor

Analysts agree that as net managers turn to peer NOSes for connectivity of small work groups and remote sites, they will drive the demand for connectivity to LAN and host environments.

"Make sure you're buying a system that will expand and connect to the corporate infrastructure," suggests Richard Seifert, president of Networks and Communications Consulting, based in Cupertino, Calif.

Barry Gilbert, an industry analyst at the Acton, Mass., office of Computer Intelligence, a research house based in La Jolla, Calif., suggests users should consider the need for remote com-

munications, bridged LANs or support for a variety of protocols. If those capabilities are high priorities, users may be better off with a server-based NOS, which provides a wider array of those options (see "Weighing peer NOS implications," page 36).

In fact, analysts say peer NOS vendors lag woefully in their ability to provide adequate connectivity to LANs and host systems.

"Nobody has a good product on the market now when it comes to connecting to the corporate environment," says Cheryl Currid, president of Currid & Co., a Houston-based consultancy.

Seifert added, "Much of today's corporate computing base is either DEC or IBM. SNA, DECnet, TCP/IP — peer-to-peer vendors just aren't offering these yet."

What's even more disturbing is that many of them aren't likely to forge links to these environments anytime soon. One reason, vendors concur, is that users are pushing them to provide connectivity to LAN environments such

as NetWare or LAN Manager instead of host environments.

Currently, users are relying on links to LANs to feed data up to applications on LAN servers, which then relay the information to a host or another system over a corporate backbone network or via a gateway.

With the exception of Apple Computer, Inc.'s MacAPPC, no peer NOS vendor provides support for IBM's Advanced Program-to-Program Communications protocol to establish peer links to IBM processors. Users should be aware that there are some third-party vendors that provide limited 3270 terminal access from peer LANs into IBM host environments.

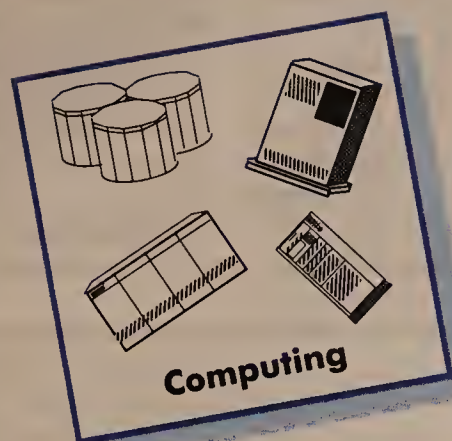
"Connecting to the outside world — especially NetWare LANs — is a major issue," says one Artisoft LANtastic user who requested anonymity. "But at this point, it's the only thing really lacking."

In the Buyer's Guide chart on this page, only four vendors —

(continued on page 36)

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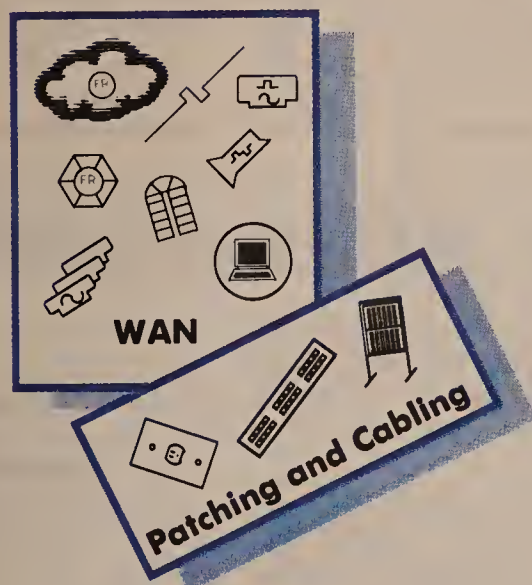


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(continued from page 34)

Artisoft, Novell, Performance Technology, Inc. and Webcorp — say they offer NetWare compatibility, but almost all offer it only to a limited extent.

For example, although Novell's NetWare Lite supports the company's own Internetwork Packet Exchange/Sequenced Packet Exchange (IPX/SPX) transport protocol, it can interoperate with other NetWare versions only if the NetWare Lite user loads the client software from a higher end NetWare version onto the same machine.

In other words, if a NetWare Lite user wants to access information on a NetWare 2.2 server, the user must run the NetWare 2.2 client software in parallel with NetWare Lite client software.

The drawback to this approach is that it can easily put memory constraints on client workstations, particularly if they employ an older version of DOS that lets

Most of the primary peer-to-peer vendors do offer more than just password protection.



the user access only 512K bytes of memory. The dual NetWare shells also force the user to log out of one network and onto another. This may not be a desirable method, particularly for a peer-to-peer customer whose top priority is ease of use.

The preferred alternative would be for Novell to provide NetWare Lite users with support for NetWare Core Protocols (NCP), which would give NetWare Lite users the ability to access data and services on a NetWare server.

Novell acknowledges that it is working to improve NetWare Lite's access to NetWare LANs, but William Donahoo, director of marketing for Novell's Desktop Systems Group would not say if Novell will offer NCP support in NetWare Lite.

NetWare Lite users aren't the only ones with a headache when it comes to accessing server-based NetWare LANs. Although Artisoft has built a perception that it offers NetWare connectivity, it does not actually offer NetWare access to LANtastic users. The company's LANtastic for NetWare software sits on top of a NetWare client shell, giving NetWare

customers peer-to-peer capabilities to reduce the load on NetWare servers. It does not give existing LANtastic users access to NetWare servers or services, as some might think.

The company that comes closest to offering true NetWare connectivity is Webcorp with its Web peer LAN.

Like NetWare Lite, Web is based on Novell's IPX/SPX transport protocols, but it also supports a subset of Novell's NCP and many of NetWare's application program interface (API) specifications. NCP support provides Web users with direct access to NetWare servers.

"Web is compatible enough with NetWare to use the same client software to simultaneously access both Web peers and classic NetWare servers," according to "The Clark Burton News Analysis," a newsletter published by The Burton Group, a LAN consultancy based in Salt Lake City. In addition, the report states, "Web said it's planning to extend its support to include integration with NetWare's bindery."

A NetWare bindery is a NetWare database containing network objects such as physical and logical entities, qualities such as security parameters and access privileges, and other information on nodes and applications. Support for NetWare bindery information will give Web users access to the same devices, services and applications as NetWare nodes.

Secure investments

Just as connectivity to other nets has emerged as a major buying factor, so has security gained ground as a major buying criterion.

Users today want to extend to peer LAN users the same levels of security provided to other LAN users. Unfortunately, although it is not nearly as antiquated as it used to be, analysts are still wary of the security implications of peer-to-peer environments.

"I don't know exactly what I would consider decent security, but password security just ain't enough," Currid says. She explains that in a peer-to-peer environment, all network users are literally sharing their hard drives — a frightening thought, she says, from a corporate perspective.

"You can secure a file server, but if you're in a peer-to-peer environment, all the software is distributed," she says. "In a small organization, maybe that's not a big deal, but in a large corporation, it's just not appropriate."

Most of the primary peer-to-peer vendors do offer more than just password protection. In fact, of the vendors surveyed, Artisoft's LANtastic and Tiara's 10Net offer the most security op-

tions.

Both LANtastic and 10Net offer audit trails, for example, so the administrator has a log of all network activity. Both also let an administrator or supervisor implement logon restrictions, password expiration and access privileges, restricting users from particular files or resources.

Some products, such as Performance Technology's PowerLan, offer three or four of these capabilities. But at the other end of the spectrum, Sitka Corp.'s DosTOPS, SunTOPS and MacTOPS, for instance, offer only basic password protection.

The client factor

Although most peer NOS vendors either support or have announced support for Windows and DOS workstations, few support Unix, OS/2 or Macintosh clients.

For example, of all the vendors surveyed, only Novell's NetWare Lite and Datapoint Corp.'s PowerLan — which it resells from Performance Technology — support client operating systems other than DOS and Windows.

When choosing a peer NOS, Seifert of Networks and Communications Consulting suggests asking the vendor what its plans are to support Macintosh, OS/2 and Unix on client workstations. Although this may not be an immediate need, users say this is a factor they will soon have to address.

"We're in the process of start-

ing a net reevaluation, and we're looking at the possibility of running OS/2 and Unix," says Roanoke Capital's Thomas. According to Thomas, her company is currently using a 10Net LAN, but 10Net does not yet support either of these operating systems.

Sitka has differentiated itself from other peer NOS vendors by announcing plans for the release of its OpenTOPS peer NOS, which is expected to support an array of client workstations.

OpenTOPS, scheduled to be

product manager for Tiara's 10Net.

While the added operating system support provides users with the flexibility to support almost any major client workstation, the support for IPX and TCP/IP provides users with the ability to access other networks.

"OpenTOPS is something we would definitely consider," Thomas says.

Other factors

While connectivity and securi-

Support for IPX and TCP/IP provides users with the ability to access other nets.



released in January, will be a new peer NOS based on the core 10Net system offered by Tiara. It will support not only DOS clients, but also Windows, Macintosh, Sun Microsystems, Inc.'s Unix-based Solaris and even pen-based clients using GO Corp.'s PenPoint operating system.

Later next year, after the initial release of OpenTOPS, Sitka plans to add support for other IBM Operating System/2s, as well as Network Basic I/O System Extended User Interface and AppleTalk protocols. Eventually, Sitka will add support for IPX and TCP/IP, according to Dan Clark,

ty are major buying criteria, users shouldn't overlook the obvious factors, as Nola Matthews, MIS manager at First Interstate Bank of South Dakota, N.A., based in Sioux Falls, S.D., discovered.

First Interstate is running a LANtastic LAN that has grown to 108 personal computers.

"When we bought the system, we expected only to have between seven and 10 users," she says. "Obviously, we grew, and we were pleased at how the network handled the growth."

Artisoft supports a maximum of 300 nodes. Other companies claim to support even more: Web,

Weighing peer NOS implications

Peer-to-peer LANs are not suited for everyone.

Analysts warn that even if a user's gut feeling is to go with a peer local-area network, there are factors to consider before making the final decision.

"First, don't look at what you need today, look at where you'll be in two to three years," says Richard Seifert, president of Networks and Communications Consulting in Cupertino, Calif. "You should be sure that the system will pay for itself in that amount of time."

Others agree.

"Users sometimes underestimate their requirements," says Barry Gilbert, an industry analyst at the Acton, Mass., office of Computer Intelligence, a research house based in La Jolla, Calif. "If you're just looking for print and file sharing, that's pretty basic stuff. But if you want to integrate to other environments and services, that's another story."

"Knowing what you want to

do with the network and how big it may become in two to three years will determine if peer-to-peer is what you want to do," he adds.

Users should anticipate what applications they'll need to support. For example, if you're running an application that requires database queries, peer-to-peer networking may not be the best choice, Gilbert says. Peer network operating systems (NOS) don't have the ability to handle a steady stream of database transactions.

Furthermore, most database management systems are server-based, so peer NOS users would lose the ability to operate in peer mode.

Seifert warns that many companies make the mistake of not only being too shortsighted but being too longsighted, as well. He says if customers look as far as the next five years, for example, they may end up overpaying for a product — in other words, that product may be obsolete be-

fore it has paid for itself.

Replacing the net

Users should be aware that if the network grows substantially, they may have to replace it with a server-based environment, such as Novell, Inc.'s NetWare. The reason is not only that many peer-to-peer networks simply are not designed to support a large number of nodes but also most do not have the high-end capabilities — such as directory services, extensive wide-area support and diagnostics — offered on server-based systems.

Few peer NOSes, for example, provide connectivity to other LAN environments, and virtually none provide wide-area connectivity options. Peer NOSes lack support for wide-area protocols such as the Transmission Control Protocol/Internet Protocol and DECnet, making wide-area transmission over a corporate backbone difficult, if not unlikely.

— Caryn Gillooly

for instance, claims to support up to 900 nodes.

One caveat users should remember is that as the number of nodes grows, so does the traffic between nodes, which could degrade response times.

Some vendors, such as Webcorp, offer compression, which the company claims provides more than 10M bit/sec throughput on its Ethernet connections. This type of capability could aid users by mitigating the effect on response times as the number of nodes grows.

NetWare Lite and Moses Computers' MosesAll! each support a small number of users — 25 and 15 nodes, respectively.

One factor that may affect whether users go with MosesAll! is that the NOS runs on top of a proprietary network instead of over standard Ethernet or token-

NetWare Lite and MosesAll! each support a small number of users.

▲▲▲

ring nets. All other vendors surveyed support at least Ethernet, while CBIS, Inc.'s Network OS-Plus and Web Network Operating System support Ethernet, token ring, Arcnet and more. Sitka's products run over AppleTalk nets.

Other factors

Another factor to consider is what services come standard with the NOS.

For example, although a majority of vendors provide E-mail services bundled with their offerings, Novell's NetWare Lite does not.

As with its higher end products, the company is relying on third-party vendors to supply the applications that will run on its peer-to-peer LAN.

In addition, hardware and random-access memory should merit attention. On the hardware side, Artisoft's flagship LANtastic NOS runs on the company's own proprietary network interface cards, which operate at 2M bit/sec, basically locking the customer into both a hardware and software purchase.

LANtastic customers, however, do not seem to mind this.

"It's simply cheaper to buy Artisoft's hardware," says one user who requests anonymity.

Matthews says she doesn't mind either but for different rea-

sons. "It hasn't been an issue for us to use Artisoft's cards," she says. "We are concerned about pricing, and — yes — Artisoft's cards are less expensive. But we're more concerned that what we spend our money on does the job."

Nevertheless, it is something to consider, since both hardware and software would have to be swapped out if a customer someday decides to migrate to a server-based NOS. Artisoft also offers a product called LANtastic AI, an adapter independent version of the NOS, but there's a trade-off. Performance on LANtastic AI is less than the version that works with LANtastic's proprietary adapters.

On the memory side, Hayes Microcomputer Products, Inc.'s LANstep requires as much as 110K bytes of RAM in each client on the network for machines that do not support DOS extended memory, while Artisoft's LANtastic requires only 12K bytes per node.

Most peer NOSes offer various features as standard fare including the ability to dedicate a node as a server and a menu-driven interface, and almost all offer PostScript printer support and on-line context-sensitive help.

Performance Technology's PowerLan and Webcorp's Web offer the widest array of features, including error logging, remote booting and diagnostics, and global resource naming capabilities.

While standard features vary across the lot, buyers should also be aware that some vendors package the software with LAN cabling and network interface cards.

Hayes, Invisible Software, Inc., Moses Computers, NetSource, Inc. and Tiara all provide

Hardware and random-access memory should also merit attention.

▲▲▲

hardware packaged with software.

Dollars and sense

Of the vendors surveyed, most offer their software configured in 10-node packages and ramp up to 50-node and, in some cases, 100-node versions. Some vendors, though, forego that stratification for other pricing levels.

For the purpose of the Buyer's Guide chart, we asked vendors to

quote prices for fully configured 10- and 50-node versions of their software.

The average price of a 10-node package is about \$1,000. Webcorp and Novell offer 10-node packages at \$765 and \$790 for Web and NetWare Lite, respectively. It should be noted that neither product includes cabling or network interface cards.

There's more to buying a peer NOS than just looking at the price per node.

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Invisible Software's Invisible Network and NetSource's SilverNet Ethernet Edition came in at the high end, priced at \$2,790 and \$3,000, respectively, for 10-node packages.

However, both of these products come bundled with the necessary hardware.

The prices of 50-node packages were not as standard. Prices on these range from \$795 for Datapoint's PowerLan to \$49,750 for Sitka's DosTOPS and MacTOPS products.

Ready to buy

The upshot is there's more to buying a peer NOS these days than just looking at the price per node.

Users need to consider the growth capabilities of a peer NOS, as well as connectivity and security features needed to extend the same level of service to peer LAN users as afforded to other LAN users.

Just because a vendor says it offers connectivity, doesn't mean that link to the corporate network is going to run smoothly. Buyers should be aware of the trade-offs they may have to make and the implications of protocols and APIs a vendor supports to popular NetWare LANs, for instance.

Users intent on extending the same level of security to peer LAN users as other users have should closely examine the range of security options vendors offer.

On the client workstation side, users should look to the long term and compare the vendors' support for client operating systems, even if the user doesn't currently employ Unix or Macintosh clients.

That done, users can rest assured their final purchase decision will support company needs for some time to come. ■

Letters

continued from page 31

essentially a onetime cost, yet we're charged for them on a recurring basis.

I recently asked the Texas PUC for an interpretation of a Southwestern Bell service. My request was referred to Southwestern Bell. The tariffs — as approved by the Texas PUC — are so vague, they allow Southwestern Bell to interpret them as they wish, depending on the situation.

The local exchange carriers are a monopoly. Users have very little choice in whether to use their services. They are allowed to invest their revenues (based on a guaranteed rate of return) in

foreign countries. Southwestern Bell has invested more than \$1 billion in Mexico alone, instead of upgrading U.S. services or reducing U.S. rates.

It is the marketeers who are to blame for this. Technologists know what is required to provide services, and they, in addition to engineers, are not just concerned with technology and black boxes.

Most of us have degrees in business and economics, and far better understand the cost of doing business than many marketeers.

Larry LaBorde
President
Telecommunications
Resource Associates
Houston

Lotus gives users a look

continued from page 23

Some of those services are now scheduled to be included in the Macintosh OS via Apple Computer, Inc.'s Open Collaboration Environment (OCE) Toolbox. Peter O'Kelly, senior application developer for Lotus, said his company may eventually base its Macintosh client on OCE.

"OCE, in general, is something we'd really like to integrate, but not in the first version," O'Kelly said. "OCE's services do overlap [with Notes]."

System 7 features

The client will support System 7 features, including Apple Events, TrueType, Balloon Help, 32-bit addressing and virtual memory, the company said. It will also support new features included in Notes 3.0, according to company officials ("Groupware

show highlights emerging applications era," NW, Aug. 10). Lotus also plans to ship updated Windows and OS/2 clients with Notes 3.0.

"OCE is something we'd like to integrate, but not in the first version."

▲▲▲

Lotus currently has no plans for a Macintosh-based Notes server, but it will offer a Unix-based server next year. ■

Link Notes

continued from page 18

dy Space Center for its Core Electronic Systems Project.

The project is a real-time control, checkout and monitor system for the National Space Transportation System, the Space Station Freedom and future space programs during the next 30 years.

FiberCom can be reached at (703) 342-6700.

US West, Inc.'s Advanced Communications Services unit last week announced that it has signed separate agreements with Cisco Systems, Inc. and Advanced Computer Communications that will enable the carrier to resell both vendors' line of bridge/routers to interconnect local- and wide-area networks.

To obtain more information, call the company at (303) 965-8973.

Mux Lab has rolled out Switchex, an electronic patching system comprised of a hardware switching module and database software that allow companies to manage a network of as many as 12,000 end nodes via a single personal computer.

Switchex, which is designed to replace patch panels, allows cross-connections between host computer ports and wall outlets to be controlled electronically instead of manually.

Switchex is protocol-independent, which means it allows users to combine different networks, protocols and topologies, including 10Base-T Ethernet, token ring and X.25, into a single network.

The product is available now and is priced between \$2,000 and \$6,000, depending on configuration.

For additional information, contact Mux Lab at (514) 735-2741.

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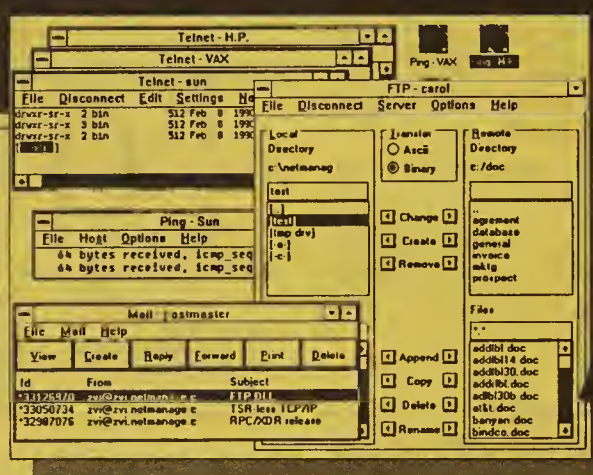
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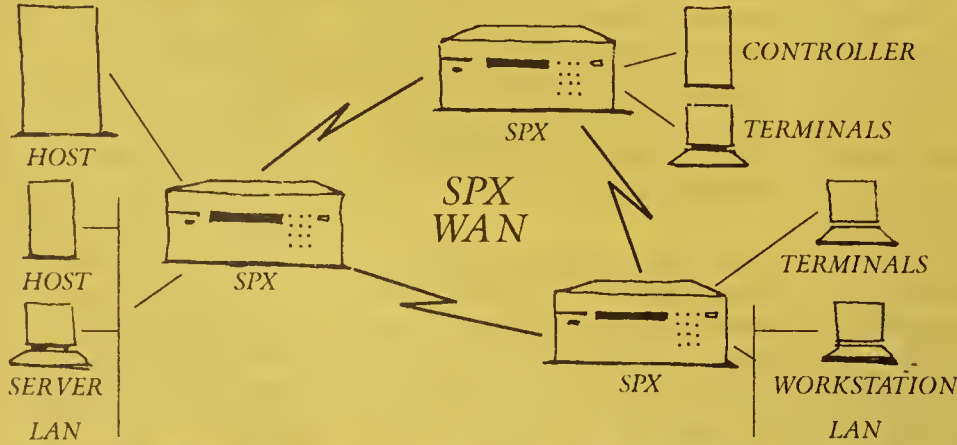
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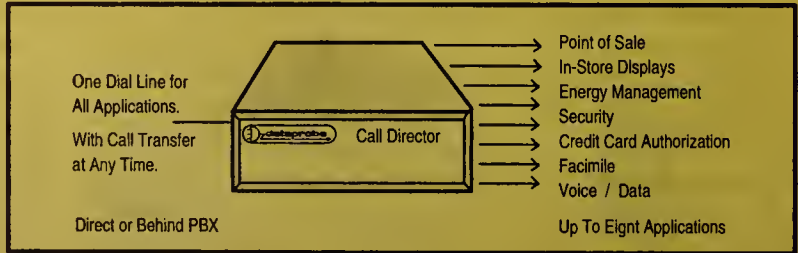
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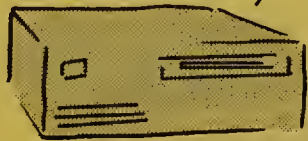
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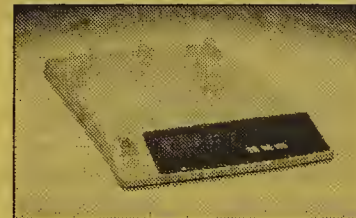
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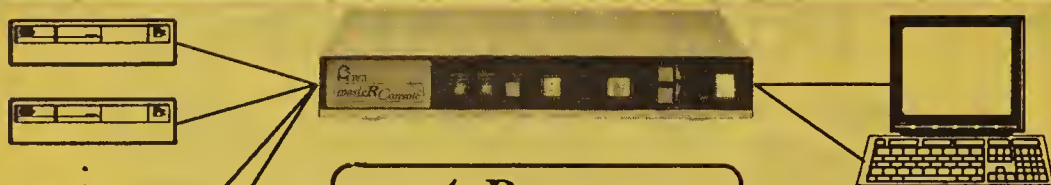
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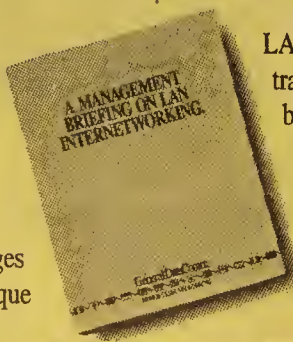
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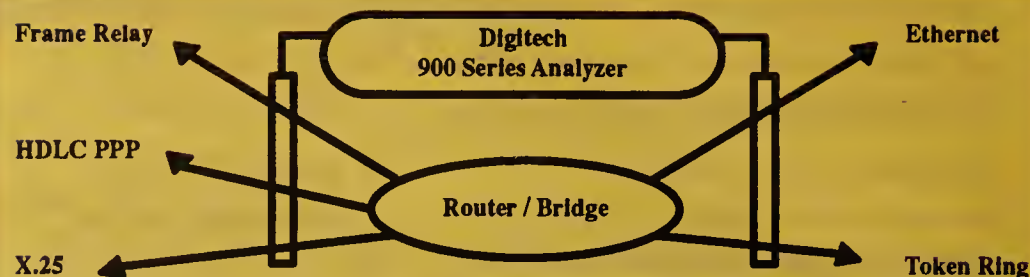
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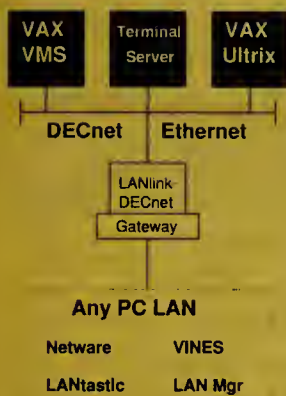
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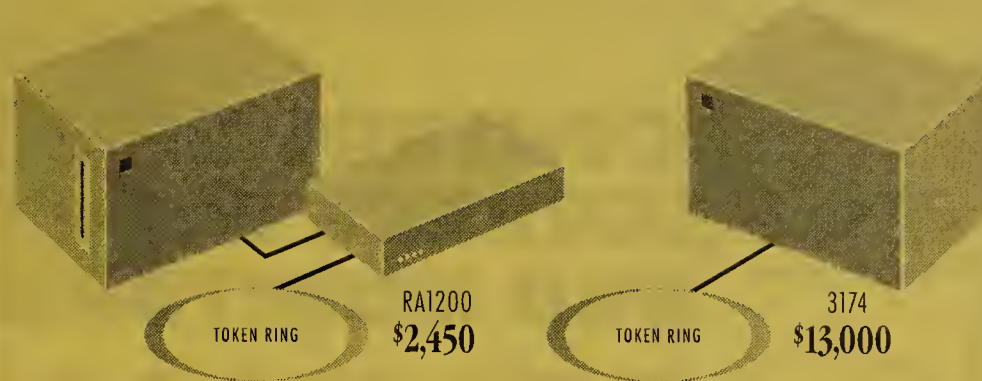


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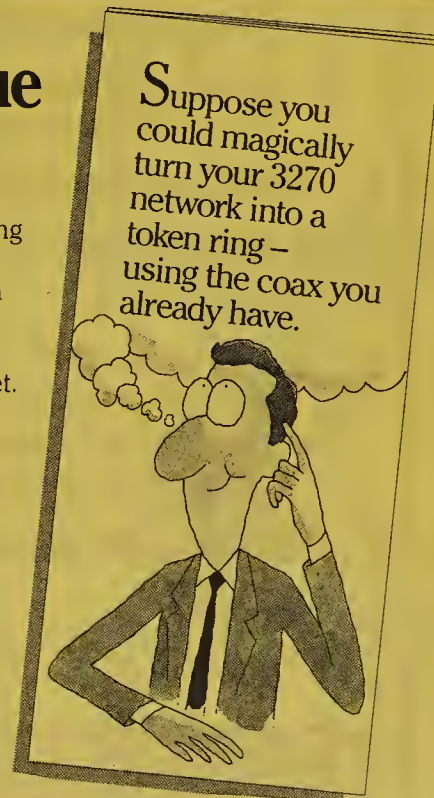
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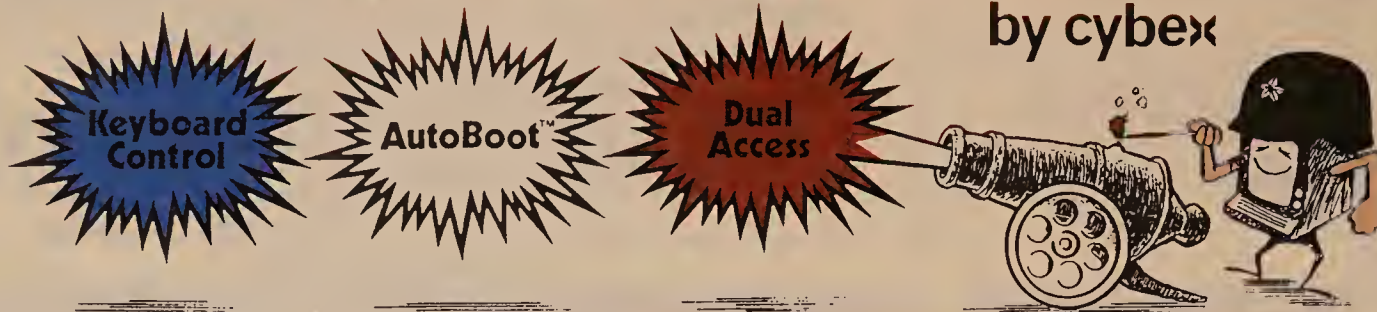
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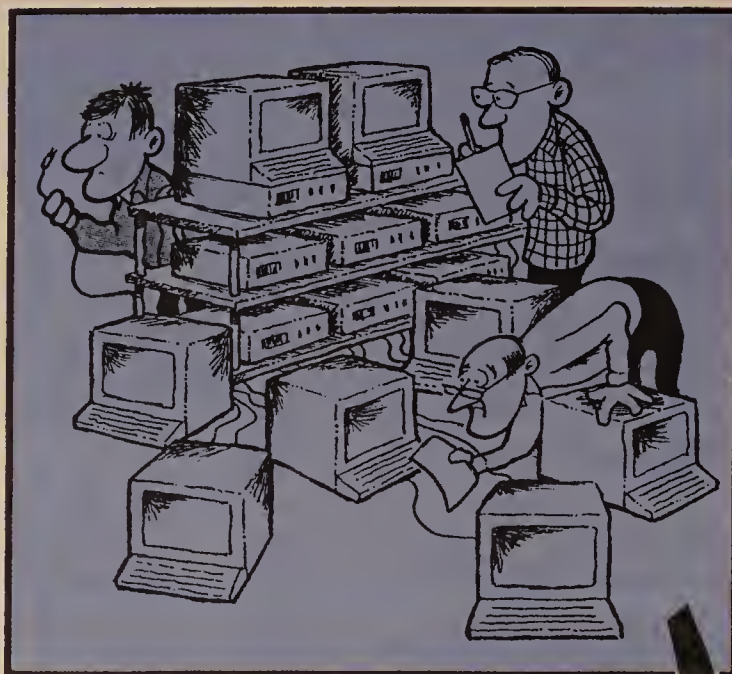
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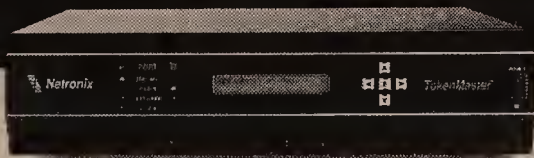
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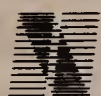
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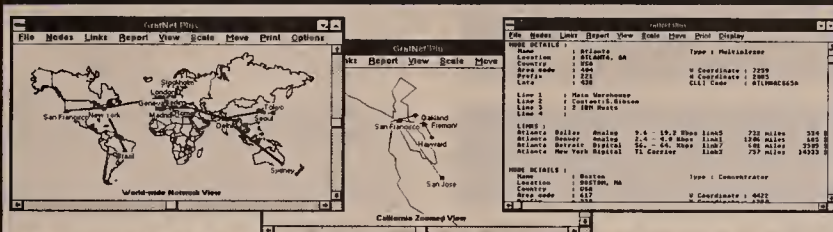
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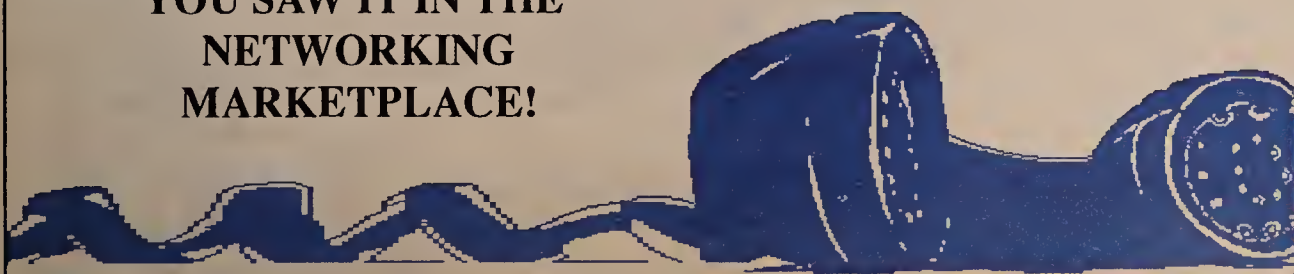
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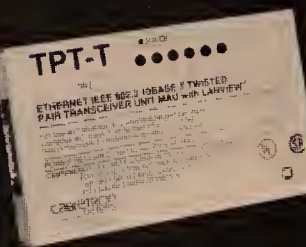
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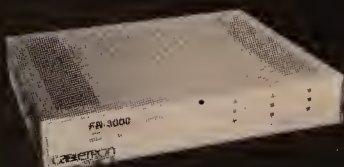
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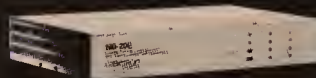
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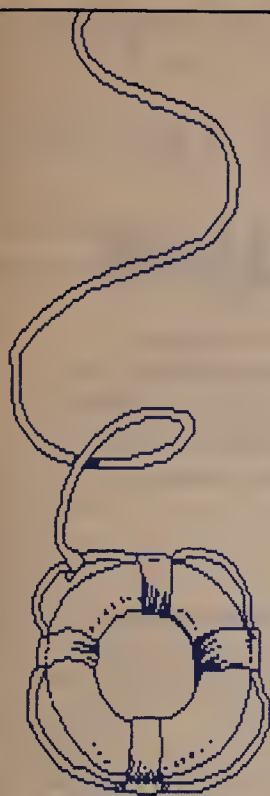
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- MBA and 4 years' network s/w in an engineering and/or technical marketing capacity
- Understanding of network management issues/s/w development
- Create and manage 3rd party s/w relationships
- Knowledge of network operating systems and UNIX are pluses.

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NETWORK WORLD
The Newsweekly of Enterprise Network Strategies

LANNET unveils multimedia strategy using 10Base-T

Combines high-performance hub with modified components to achieve links for under \$1,000.

By Skip MacAskill
Staff Writer

HUNTINGTON BEACH, Calif. — While many vendors are hyping Asynchronous Transfer Mode (ATM) as the answer to users' LAN-based multimedia requirements, LANNET Data Communications, Inc. claims a more cost-effective Ethernet-based solution is just around the corner.

The company, based here, last week detailed a multimedia network strategy that relies heavily on its flagship intelligent hub, the LET-36, which is a high-capacity device that can be used for a wide range of traditional and bandwidth-intensive applications, including video to the desktop.

"LANNET is trying to differentiate themselves from the rest of the pack with the video capabilities," said Todd Dagres, director of data communications and research at The Yankee Group in Boston. "But even if you take video out of the equation, they still compare favorably to rivals in terms of functionality and price/performance."

LANNET's multimedia approach involves four components: the intelligent Ethernet hub with a high-speed switching backplane, a specialized video server, enhanced 10Base-T modules and network interface cards (NIC) for client workstations.

The 10Base-T modules have been upgraded by LANNET with special driver software, in effect creating a new module that the company calls 10Base-TV, which

is tailored to support video.

The NICs are based on the Digital Video Interface developed by IBM and Intel Corp., which provides real-time video compression of 100-to-1 to support video at 1.2M bit/sec. They also support VGA graphics.

Fluent Machines, Inc. of Natick, Mass., designed the NIC software, and MediaShare Corp. of Carlsbad, Calif., manufactured the boards.

LANNET has enlisted Starlight Networks, Inc., a start-up based in Mountain View, Calif., to provide the video server — not expected until this fall — that will feed packetized video streams to the smart hub.

Ideal situation

In the multimedia network that LANNET envisions, the server would be linked to a smart hub via a high-speed connection, such as nonblocking Fiber Distributed Data Interface, which could support as many as 36 sessions.

According to LANNET's plan, the hub role is played by the LET-36, the company's 18-slot, high-capacity, multiple-bus hub that supports token-ring, Ethernet and FDDI local-area networks.

The box comes equipped with four 10M bit/sec buses that can support an equal number of independent Ethernets. There are also two token-ring buses that can support 4M or 16M bit/sec token ring, which can each be segmented into nine separate token rings.

On top of all that, the hub has a 1.28G bit/sec backplane that can support as many as 128 dedicated 10M bit/sec Ethernet segments. That gives the device the capacity to support dedicated Ethernet links to desktops, which is enough bandwidth to handle applications such as video, according to Avi Fogel, president of LANNET.

"The LET-36 is perfect for a number of multimedia uses, including employee training with interactive video manuals, video clip production in broadcast news environments and interactive learning tools in school," he said. "The dedicated 10M bit/sec link will also serve the majority of users' video needs."

LANNET further claims it can provide these multimedia capabilities over 10Base-T at a low cost.

"Pricing is not finalized yet, but we're looking at something in the range of two to four times the cost of current 10Base-T connections," Fogel said.

That would place per-connection prices between \$200 and \$800.

Because of this pricing and the fact that a user's installed base of Ethernet would be protected, Fogel said he believes this approach to multimedia networking will be more appealing than ATM.

"Users will certainly be able to use ATM and achieve 155M bit/sec to the desktop for multimedia applications at [thousands of dollars] per connection, but why would they want to?" he asked.

There are prototypes of both the 10Base-TV modules and Digital Video Interface NICs currently in use in the field, but Fogel declined to provide more details.

Production units of the products are expected to be available in 1993. □

Pack lets NetView manage DEC nets

continued from page 2

liver management link," NW, June 22).

Phoenix said it will license Six2View to interested vendors, including router and hub vendors, enabling them to forge a direct link from their management systems to NetView.

Phoenix also plans to release versions of Six2View for Tandem Computers, Inc. and DEC Ultrix systems in December, and a more generic Unix version in the first quarter of 1993.

Phoenix is run by President Samuel Coffee, who had been manager of network management systems for Union Pacific Railroad Co. in Omaha, Neb. While at Union Pacific, Coffee helped develop software that enables IBM's NetCenter graphical

gathers alerts from all systems in a DECnet domain and forwards them to the NetView host through the server. Users can define parameters to trigger alerts and to determine the content of an alert.

When NetView receives a DEC alert, a net manager can call up a screen on the NetView console that is similar to the "fill-in-the-blank" command line interface on a DECmcc Director console. This capability is intended to relieve managers familiar with DEC interfaces and commands from the complexity of NetView syntax and to shield managers familiar with NetView from DEC management syntax, Coffee said.

The manager can then send a command to a DEC node that is running Command client. Command client checks whether the manager is authorized to issue the command and, upon authorization, issues the command to the

“Who cares about protocol translation if the job's done?” Wood asked.

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user interface for NetView to display alarms and alerts from third-party devices ("NetView user ties non-IBM devices into IBM center," NW, Nov. 6, 1989).

That software, called Service Point Interface, was used to graphically display alarms from a Larse Corp. alarm system that monitored devices on Union Pacific's private microwave, fiber-optic and radio networks.

Six2Dmcc, meanwhile, is made up of four software components. One runs on the NetView host and is responsible for interpreting DEC alerts and sending remedial commands. Another, called Server, sits on a DEC system and is responsible for establishing the LU 6.2 sessions between NetView and DEC systems as well as and routing commands and responses between them.

The two other software packages also reside on DEC systems and are called Alert client and Command client. Alert client

faulty node.

Though not released yet, the DEC-Systems Center scheme is expected to work in much the same fashion as Six2Dmcc, but with CMIP running over LU 6.2. Using only LU 6.2, however, obviates the need to perform protocol conversion at the NetView level, which, according to Coffee, the DEC-Systems Center software requires.

Unless protocol conversion slows performance, analysts say it won't matter with users. "Who cares about protocol translation if the job's done and there's more productivity?" asked Tom Wood, an analyst with Business Research Group in Newton, Mass.

Version 1.0 of Six2Dmcc will be available in September. It will be priced from \$39,000 to \$45,000. Version 1.1, which will add the ability to issue NetView commands from DECmcc Director consoles, will be available in the fourth quarter. □

NSF pressed to reexamine net

continued from page 4

subsidy will not even begin to pay for the real cost of building the network.

Few bidders will be interested without this guarantee, those three companies said, reminding ANS of the network design's experimental nature.

"While we endorse the notion that the Routing Authority develop a route server that is deployed within the NAP architecture, it must be noted that the route server is a research topic with no demonstrable implementation," they said.

The ATM connection

ANS, IBM and MCI also critiqued the network design, calling FDDI a mismatch with the 155M bit/sec backbone, and sug-

gested that the new network offered unique opportunities to use ATM local-area networks.

StrataCom Federal Systems, Inc. agreed. "ATM would best serve the needs of users," the company said in a recent NSF filing. "ATM delivers maximum flexibility. The cell adaption layer easily provides support for all traffic types, including circuit mode, packet mode and native cell [or ATM] services."

But Bell Communications Research and the seven regional Bell holding companies expressed reservations about NAPs. They said the subsidized NAPs and the acceptable-use policy both create a "disincentive to private investment in data communications," and they objected to the use of untested technology in a widely used network.

They said NSF should fund an experimental network as a high-

speed test bed, while a second production network evolving from the current T-3 NSFNET should would be operated by the private sector.

For a variety of reasons, the RBHCs, Educom and Sprint Corp., as well as Brian Kahin, director of the information infrastructure project at Harvard University, and Jim Leighton, manager of the Department of Energy's (DOE) Energy Sciences Network, all took the position that NAPs should be unbundled from the Routing Authority.

Kahin, director at Harvard's Science, Technology and Public Policy Program, said NAPs could be operated commercially and competitively without government subsidy in most areas, although an initial subsidy might still be needed. However, MCI, in separate comments, advocated

(continued on page 49)

ProLINC tool set upgraded

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prise resources via Windows is DynaComm Asynchronous 3.1 for ProLINC, which can expand ProLINC's terminal-emulation capabilities by offering VT-340 graphics emulation. It also supports Windows Dynamic Data Exchange, a method for sending information and commands between Windows applications.

The software supports a wide range of binary transfer protocols and emulates the major types of terminals such as the DEC VT-52, IBM 3101 and AT&T 605/705.

DynaComm Asynchronous 3.1 for ProLINC, the first in a series of terminal-emulation products being developed by Hughes and FutureSoft, costs \$249 for a single-user license and \$5,500 for a 25-user package. It is available now. □

Protecting the net: Effort pays off

continued from page 1

a national mutual aid agreement that would protect users throughout the U.S.

How the plan works

Formation of New York's mutual aid consortium was spurred by a series of major problems that crippled New York's network, including an outage in September 1991 at an AT&T switching center that knocked out traffic to lower Manhattan and disrupted communications at all three major airports in the area.

At that time, concern about the integrity of the network was already high. In 1990, a report issued by New York City Partnership, Inc., a group of 150 corporations and civic leaders, warned that a major net outage would cripple the city — the heart of the nation's financial system — and lead to losses totaling as much as \$1 trillion a day.

Prompted by these events, local and long-haul carriers this past February agreed to assist one another in the event of a critical disruption of wideband facilities in their metropolitan New York networks. Under the mutual aid plan, the carriers established procedures for working together to restore high-capacity transmission facilities.

Carriers have committed to making excess network capacity available at the time of an outage in order to handle traffic off-loaded from the failed carrier. The telephone companies have shared information about facilities and equipment at major network locations and studied how to off-load traffic to other carriers.

Several sources interviewed said the information even covers such minute details as the type of connector needed to run a restoral fiber to any of the carriers.

According to Jim Shea, district manager for New York Telephone Co., in the event of a major outage, carriers would convene to draft a plan for off-loading traffic from the stricken carrier. He said procedures now exist for dispatching work crews to install facilities or equipment needed to transfer traffic from the failed carrier onto the spare circuits of other carriers.

John Gebosky, a member of the New York Department of Telecommunications and Energy, which pressed for the agreement, said, "The carriers most able to pick up the traffic would do so. Every carrier has agreed to cooperate in such a situation."

Under the plan, either the affected carrier or a representative from the Department of Telecommunications and Energy has the authority to declare a tele-

communications alert or emergency.

An alert is defined as the loss of critical, high-capacity facilities handling intracity traffic or traffic into and out of New York that the carrier may be able to deal with on its own. The plan defines an emergency as a loss the carrier cannot restore within two hours using its own spare capacity.

Where do we go from here?

The Mutual Aid and Restoration agreement has given carriers a leg up on dealing with outages. But other steps could be taken to protect users in New York and around the country.

New York City:

- Devise procedures to keep users informed in the event of an outage.
- Increase user participation in trials of the backup agreement.
- Conduct a live outage simulation in which carriers actually link facilities and reroute traffic.

Nationally:

- The federal government should push for a national mutual aid plan.
- In the absence of federal action, users and state or local governments should push for mutual aid agreements.

GRAPHIC BY SUSAN J. CHAMPENY

Jeffrey Held, a principal with Ernst & Young, a Vienna, Va., consultancy, said the city and the stricken carrier can usually tell if service can be fully restored in under two hours. The vast majority of outages would be longer than two hours in duration.

Testing the plan

Since signing the plan, carriers have conducted drills designed to test the procedures they've developed and resolve any snags that occur. In these drills, carriers were given outage scenarios and asked to detail which spare facilities were available. Members then chose the most appropriate method for the stricken carrier to off-load traffic (see graphic, page 1).

After the first set of drills in April, participating carriers decided to create a so-called Failed Carrier Checklist, a compilation of information needed to speed a restoral.

Last month, the consortium conducted a second round of drills. In both cases, it took less than 90 minutes for each carrier to report which restoral facilities were available and for the stricken carrier to decide which links to use.

Shea said the exercises have gone well and he believes the carriers are now much better pre-

pared to handle outages. New York Telephone coordinated the conference call for carrier meetings during the outage exercises and would do the same during a real emergency.

"I think we will be able to restore service faster now than if the group didn't exist," Shea said. "No one wants to go through an outage, but now there's a drill to go through."

One of the strongest criticisms lawmakers and regulators leveled against carriers during outages last year is that they did not have a formal procedure for notifying officials or one another about the problems.

Shea said the mutual aid plan has resolved that; everyone now knows what to do in order to get an emergency situation under control. The carriers have set aside professional rivalries and trusted one another with proprietary information about their net facilities and configurations, he added.

"If you leave technical people to solve the problem without taboos about speaking to one another, they can probably fix it fairly quickly," Shea said.

He acknowledged that it will still take time — perhaps a good deal of time — to repair major outages. But he said the work that has been done will give carriers a jump on catastrophic outages that they otherwise would wrestle with alone.

"The fact that New York City has taken the lead in bringing carriers together in an operational dialog is a help in itself," said Rich Kozak, president of MFS Development Co., an MFS unit.

Kozak said he hopes the idea of mutual aid agreements will spread and thinks the success of the New York plan should help. "If the New York Public Service Commission is able to coalesce all the carriers [into signing a backup agreement] then you can

the closer working relationship," he said.

Users also applauded the progress made under the mutual aid pact.

"The carriers have come a long way in a relatively short time," said Ken Phillips, president of Citicorp's Office of Telecommunications Policy and chairman of the Committee of Corporate Telecommunications Users. "There is now a formal process in place that carriers can use to handle outages quickly, and I think it will work."

Tom Festa, former president of the Wall Street Telecommunications Association (WSTA) and a network manager with Liberty Brokerage in New York, added, "I feel safer now than I did before the plan was created. The drills have given the carriers experience working with each other — something they didn't have before."

According to Tom Dunleavy, assistant commissioner with the City of New York Department of Telecommunications and Energy, agreed. "The fact that we have 14 carriers in the metropolitan New York area that have signed the mutual aid agreement and are working together on drills clearly indicates that the network is more robust and reliable now than in any point in the past. The mutual aid plan ensures network integrity for users."

Building on the plan

Despite the progress that has been made under the New York mutual aid plan, users and others said there is more that could be done to protect New York users and other companies throughout the U.S.

New York officials and users involved in the New York City Partnership lobbied for months before carriers agreed to work together during emergencies. Even so, the New York agreement is

Richard Sidoli, a voice hardware planning member with Morgan Stanley & Company, Inc. and a director on the WSTA board, said, "I think the mutual aid plan is a great idea, but I wouldn't want to wait for one carrier to come to the assistance of another. Any company that waited would find themselves in big trouble."

"We choose to rely on multiple carriers rather than the mutual aid plan in the event of a major outage," Jeff Marshall said.

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Dan Gonos, telecommunications manager for Domino's Pizza, Inc., said carriers should be bound to the agreement.

"Saying that carriers will cooperate in the event of a major outage doesn't necessarily mean they will share facilities," Gonos said. "I'd feel much better about [the plan] if the carriers *had* to back up each other."

"We choose to rely on multiple local and [long-haul] carriers rather than the mutual aid plan in the event of a major outage," said Jeff Marshall, manager director of communications for Bear Stearns & Company, Inc., a New York-based brokerage. "We think that [using multiple carriers] is a far safer approach."

Despite user concerns, Ernst & Young's Held said the carriers will cooperate to make the plan work when it is needed. "All the carriers have signed the agreement and stated their intent to [back each other up]," he said. "It would look very bad if even one of them didn't come through."

In addition, the New York plan could be expanded to detail how emergency communications with users would be handled during an outage. Currently, the stricken carrier is expected to inform customers about the problem it is encountering, and the timeliness of notification will vary by each telephone company.

Besides improving information flow to users, New York officials and carriers should bring users into the simulations so that they can better understand procedures and offer suggestions for improving operations.

Observers say the carriers should also put their plans to a tougher test with a controlled simulation of a real outage that requires participants to tackle the



"We can't order a carrier to share facilities with another carrier that has a major outage."

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argue that you can do it anywhere," he said.

A spokesman for MCI Communications Corp. said the carrier believes New York is now better prepared to handle an outage and said the carriers' willingness to work together is an accomplishment. "Any time you have people in a room trying to solve a problem, there is a benefit because of

strictly voluntary, and carriers are free to withdraw at any time. The agreement is set to expire on Dec. 31, 1998.

"No carrier is bound to the agreement," Gebosky said. "We can't order any carrier or carriers to share facilities with another carrier that has a major outage."

Some users remain skeptical about the plan's future.

technical work involved in transferring traffic from one network to another.

"[It's] like the disaster recovery plans network managers create for their companies," Liberty Brokerage's Festa said. "They look good on paper, but you never know how good they are until a real disaster strikes."

Ron West, president of the Association of Data Communications Users and a network manager with Shearman & Sterling, a New York-based financial services firm, said, "I really can't say if the network is better off now than it was before because I haven't seen the plan in action yet. Once it's put to the test, we'll all know if it works."

"It's not enough to just conduct drills on paper," he continued. "We need to get as close to a real-life situation as possible."

A model for the nation

Whatever its flaws, the New York mutual aid plan has added some measure of resiliency to the city's public network and reduced the threat that a major network problem will knock out user networks for a long period of time.

Carriers participating in the New York City Mutual Aid and Restoration plan:

- AT&T
- Cable & Wireless Communications, Inc.
- Eastern Microwave, Inc.
- LCI International
- Local Area Telecommunications, Inc.
- MCI Communications Corp.
- Metropolitan Fiber Systems of New York, Inc.
- New Jersey Bell Telephone Co.
- New York Telephone Co.
- RCI Network Services, Inc.
- Teleport Communications Group, Inc.
- Sprint Corp.
- Western Union ATS, Inc.
- Witel

SOURCE: NEW YORK CITY DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY, NEW YORK

But the New York plan was a hard-won victory that stemmed from the efforts of a powerful coalition of users and government officials in an atmosphere of deep concern over the vulnerability of the public network.

The agreement is not likely to be replicated in other cities any time soon. What's more, many feel that users should not bear the responsibility for getting carriers to agree on a mutual aid plan. They believe the FCC, which is charged with ensuring the viability of the U.S. network, should step up to the job of implementing a national mutual aid plan or at least push for better outage reporting and information sharing guidelines.

"I'd much prefer a federal mutual aid agreement to god-knows-

how-many individual city arrangements," said Domino's Gonos. "I'd expect that we could reach an agreement on a national plan faster."

Citicorp's Phillips said carriers should take a page from the book of major utilities. "Electric companies have had load-sharing arrangements in place for years



"I'd expect that we could reach an agreement on a national plan faster," said Domino's Gonos.



now," he said. "I don't see any reason why we can't do the same with carriers."

But the issue of mutual aid is complicated and politically charged, making it unlikely that sweeping changes are on the horizon. The advent of competition in both the local-loop and inter-exchange markets has created roadblocks to emergency restoration agreements.

For years, AT&T has advertised that it has the highest quality services available, and it may see no advantages to having its traffic shunted onto rival networks, even during a crisis. And it is almost impossible to expect rival carriers not to try to take advantage of a competitor's woes.

During two massive AT&T outages over the last two years, rival carriers attempted to reinforce the idea that AT&T is not as invincible as its advertising would have users believe.

Carrier officials have made no secret of their distaste for such agreements. Although it signed the New York plan with 13 other carriers, AT&T expressed reluctance in participating.

"The technical feasibility of connecting networks is a major concern for us," an AT&T spokesman said last fall. "We also have competitive concerns. We don't want to be in a position where we automatically back up other carriers' networks."

AT&T declined to discuss the mutual aid plan. A spokesman said, "We'd prefer to address the issue of connecting networks in industry forums, such as the Network Reliability Council."

But during a July meeting of the NRC, an industry advisory group to the FCC, Frank Ianna, vice-president and chief quality officer with AT&T's Network Services Division, was one of several carrier executives who urged the group not take up the topic of mutual aid plans at the federal level.

"Many carriers have individually backed up and restored other carriers during outages," Ianna said, adding that a voluntary approach is adequate.

MCI Chairman Bert Roberts also spoke in a favor of voluntary cooperation and opposed an NRC study of a national policy on mutual restoration.

"I don't think this is an area that [the NRC] should take on," Roberts said during the meeting. "We don't need to reinvent the wheel."

William Esrey, chairman and chief executive officer of Sprint Corp., said each carrier should do its own network planning. "Sometimes I feel like I'm sitting in China where we're all supposed to march in line," he said.

Wait and see

To date, the FCC has not acted on the issue of mutual aid and restoration and, for now, seems to be playing a wait-and-see game. The FCC has supported the idea of mutual aid agreements in the broadest sense, but one staffer, who has extensive knowledge of the New York agreement and the NRC activities, said there are limitations to such an agreement.

Network General extends DSS

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the primary reason we looked at this product," said Jim Runnels, senior telecommunications analyst at Ameritech Services, Inc., a subsidiary of Ameritech, based in Chicago, and a beta site for SM/X.

According to Runnels, the company started out using Network General's portable Sniffer analyzers and, as its needs expanded, bought into DSS in order to keep the same look and feel as the Sniffers.

"We were using the DOS-based product, but we had Unix workstations in two of our network control centers" where the company was running SunNet Manager as its umbrella network management system, Runnels said. "This product fits into our network management strategy," he added, by allowing the company to run the Sniffer software on the existing Unix machines.

Others agreed. "We'd been

To be useful, very specific network information, including equipment, facilities and access agreements with building owners, has to be collected and made available, the FCC source said.

To his credit, FCC Chairman Alfred Sikes urged the NRC not to table discussion of a national agreement, despite carrier concerns.

Sikes said the NRC should determine whether a federal mutual aid agreement is in the public interest and, if so, proceed on the topic. "If you take this [discussion] off the table, it would be a mistake because it most assuredly will be on the FCC's table," he said.

But despite his urging not to shelve the topic, Sikes appears to be leaning toward a voluntary approach among carriers. "The government always likes voluntary self-help on the part of the industry, not just in FCC-land, but across the board," said Kenneth Robinson, senior advisor to Sikes.

"It would surprise me to see the FCC order the telephone industry to do this," he said. "But it wouldn't surprise me to see commissioners constantly suggesting to the industry that this would be a good thing to do."

"In the electric power business, the utilities have all sorts of elaborate reciprocal maintenance arrangements. I don't understand why that's not more widespread in this business," Robinson said. "We just got so used to having AT&T and the Bell system take care of these things that it wasn't something that regulators spent a lot of time worrying about." □

waiting for this for quite a while; in fact, we'd been pushing them to do it," said Peter Ho, senior staff network systems engineer in the Anaheim, Calif., office of Unocal, based in Los Angeles. Unocal was also a beta site for SM/X.

"We're using Lexcel's Lance product, which is Unix-based, for network management," he continued. "Although the two aren't integrated, at least now we can run them on the same machine. We prefer Unix hardware; it's a lot more powerful and flexible than [PCs]."

In conjunction with the Unix support, the new software now also supports the Motif Windows environment, letting administrators for the first time view more than one net segment at a time.

"With the DOS version you had to scroll through different screens to see different sites," Ho said. "Now you can display multiple sites on one screen."

With the Motif capabilities, administrators can also now navigate through a screen using icons

NSF pressed to reexamine net

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that the Routing Authority and NAP Manager remain as one entity due to "a tight coupling of functions."

Stones left unturned

Some of the toughest criticism came from the government's Internet users. DOE's Leighton, emphasizing these opinions were his own and not the agency's, told NSF that its network plan "leaves many operational issues undiscussed and is potentially dangerous to the stability of the Internet."

He said NSF's demand for 155M bit/sec service is "unachievable in the near time and would not be deliverable to end users, even if it could be made available by a special implementation of facilities on the backbone."

Leighton accused NSF of onepupmanship with other federal agencies for pushing for 155M bit/sec. He said no routers, interfaces, data service unit/channel service unit or LANs supporting 155M bit/sec currently exist.

The NASA Science Internet office also questioned the need for 155M bit/sec and, like Leighton, expressed the belief that the charge to connect to NAPs would result in a financial burden for federal agencies, which now connect to the NSFNET backbone free of charge.

But some consensus emerged: Everyone wants more detail from NSF as well as a requirement for a detailed transition plan to the next-generation network. □

and a mouse, as opposed to having to use a text-based system.

Analysts said this announcement is not only something customers had been waiting for, but a significant move into mainstream network management. "This gives users a much better sense of integration," said Kevin O'Neill, vice-president of network research and consulting at Business Research Group, based in Newton, Mass. "To expand the scope of influence beyond the PC LAN is important to managing enterprise networks."

Michael Howard, president of Infonetics Research, Inc., based in San Jose, Calif., agreed. "A lot of customers put their [Simple Network Management Protocol] management systems on Unix machines," he said. "This will conveniently sit on the customer's existing platform."

SM/X will be available next month for \$7,995 on either CD-ROM or 1/4-inch cartridge tape. Upgrades from SniffMaster for DOS to SM/X will cost \$500. □

User groups cry foul over hike

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other user associations who have asked the Federal Communications Commission to reject or suspend the proposed charges: Aeronautical Radio, Inc., a non-profit firm that provides net services to airlines and travel firms, and the Ad Hoc Telecommunications Group, which comprises 50 large U.S. corporations.

"Private-line circuits are essential to processing credit-card verification requests in under five seconds at high-volume service stations," the API filing said. "Several member companies are facing increases of \$500,000 or more per year."

Jarrett concurred. "Imagine the surprise for a gas company with 5,000 filling stations when it learns that the per-drop charge for each station might be doubled," he said. "The company would have to pay \$75,000 more a month for its multidrop lines."

Members of the three user associations and many others have been fighting AT&T since the carrier established the roughly \$3-per-drop charge in 1990. In

1991, AT&T proposed and was granted an increase to \$15 per drop despite user objections.

Only users with analog multidrop access to AT&T's Accunet Spectrum of Digital Services (ASDS) would be affected by the 100% increase. There would be no change in the charge for firms that use digital access. Customers can use analog facilities to access ASDS by having the signal converted to digital at a local exchange carrier's serving office or an AT&T ASDS point of presence.

"Several companies are facing increases of \$500,000 or more per year."

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Joe Lueckenhoff, division manager for AT&T's ASDS and Dataphone Digital Service, said the doubling of the per-drop charge "reflects our cost structure for these services."

He also pointed out that the proposed rate changes in the pricing overhaul — which generally decreases prices for longer links — would help offset the increase in the multidrop charge in some cases.

The carrier added that the \$30-per-drop charge could be put toward its Multi-Service Volume Pricing Plan.

Nonetheless, users responded angrily to the plan.

"This proposal should be rejected outright by the FCC," said David Eaddy, regulatory and cost control manager for JCPenney Company, Inc. "AT&T's pricing strategy forces users to move from analog to digital. That should be the user's decision."

Michael Bennet, an attorney with Keller and Heckman, said, "The FCC let last year's increase sail right through, but we're holding out hope that it will listen to users' complaints this time around."

Tariff analysts say the higher proposed per-drop charge, coupled with the carrier's plan to cut T-1 rates by an average of 10% to 15%, will force users to consider switching to T-1.

"Users should take a long, hard look at T-1, especially since the FCC will probably approve the increased charge," said Ann Bookbinder, a consultant with The Aries Group/MPSG, a Rockville, Md., tariff analysis and network design firm.

AT&T's proposed changes were scheduled to take effect last Friday, but the FCC deferred action on them until Aug. 30. ■

Course to shift net authority

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early next month. But the report reveals the department's deep frustration over the slow pace in the military's move to Open Systems Interconnection standards — a problem the Pentagon hopes to solve through centralizing the decision-making process.

Although the Defense Department spends nearly \$20 billion each year on computing and communications for both its combat and administrative systems, the report said there is a "persistent inability" to protect and exchange data across the different systems operated by the Navy (which includes the Marines), Air Force and Army.

"Base-level systems are independently planned and managed," the Defense report said. "As a result, there has been a proliferation of diverse, noninteroperable systems which introduce interoperability problems that affect our warfighting capability." Important data often needs to be reentered manually or undergo protocol translation in order to be shared, the report said.

Increased use of local-area networks has enhanced local service but decreased interoperability, the report concluded. "Network management and control must extend to the local level to integrate base-level systems into the integrated information infrastructure."

DMRD No. 918, which sources said is the brainchild of Director of Defense Information Paul Strassmann, would have the military be run like the ideal corporation.

"A corporate approach is needed to manage a global net in near real time and ensure that connectivity, capacity and security are provided," the report stated. "An examination of several world-class information systems in industry has demonstrated that an integrated, centrally managed infrastructure will lessen information processing and transmission costs, reduce personnel and streamline the delivery time for [information technology] goods and services."

If the Department of Defense carries out the objectives in DMRD No. 918, all the military's 1,700 data processing centers — with the exception of shipboard, mobile units, and intelligence and cryptological facilities — will be consolidated into 20 megacenters. These megacenters, said analysts, would proba-

bly serve the three branches of the service on a regional basis.

About 5,000 jobs per year will be eliminated through 1999, but analysts said the normal rate of attrition would likely mean very few layoffs. "It will result in job elimination — programmers, systems analysts, communica-

structuring is needed to solve unnecessary duplications under tight military budget conditions, Mallion said.

"It's a bold move, but it's probably the right move for the times," said Mallion, whose background includes high-level positions in the Army and at DISA.

Military shake-up

Defense Department mulls 2 alternatives for restructuring defense information systems

Current number of Defense Information Systems Agency (DISA) employees: approximately 7,500

No. 1

● DISA becomes central manager of the defense information infrastructure, controlling design and equipment acquisition. The military's 1,700 data processing sites will be consolidated into 20 megacenters operated by the Navy, Army and Air Force.

● Estimated savings through 1999: \$12.9 billion

No. 2

● Same as No. 1, except DISA operates information centers.

● Estimated savings through 1999: \$13.6 billion

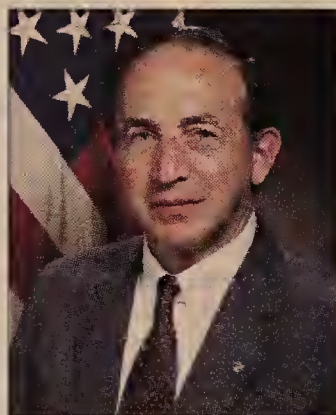
Estimated manpower transfer to DISA from 3 branches of armed services:

In fiscal year:	1993	1994	1995	1996	1997	1998	1999	Total
Under No. 1	17,897	16,767	15,858	14,926	14,008	13,132	12,257	104,845
Under No. 2	21,613	20,298	19,202	18,085	16,981	15,919	14,858	126,956

GRAPHIC BY SUSAN J. CHAMPENY

SOURCE: DEFENSE MANAGEMENT REPORT DECISION NO. 918, THE PENTAGON, ARLINGTON, VA.

tions technicians — anything you'd call a high-tech job," said Richard Mallion, vice-president of federal programs for Information Strategies Group, a consulting and research firm in Vienna, Va.



Paul Strassmann

The Defense Department plan calls for DISA to become the central planner and owner of the "communications assets" of the Army, Navy and Air Force. DMRD No. 918 proposes two very similar alternatives for carrying out the plan.

Under the first alternative, the three service branches would operate the data processing installations, distributed automation systems and local information processing centers, and would reimburse DISA for their use. The second option is the same, except that the information centers would be run by DISA. Such re-

DMRD No. 918 also proposes to improve the military's ability to act as its own systems integrator. "Since systems development and integration is a core warfighting competency of [Defense], DISA should retain the bulk of this capability as an in-house resource," the report said.

The prospect of the military systems integration market drying up has sent shock waves through the vendor community.

"Some are running around town with their hair on fire," Mallion said. But he added that he interpreted the Defense statement to mean that the military intends to create a "high-level systems integration capability" that would provide critical oversight of systems integration projects.

Whatever the Department of Defense decides to do, change won't happen overnight, Mallion pointed out. He said the possibility that the decision might have an impact on pending requests for proposal will have to be examined if the Defense Department moves ahead on its plans. ■

ODS unveils new Ethernet line

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products are available now.

ODS also added a 10Base-FL personal computer interface adapter to its line. The ODS 673 is designed for Industry Standard Architecture-bus PCs and uses a Tiara Computer Systems, Inc. chipset, which has an aggregate throughput of 9.5M bit/sec. The 673 PC adapter is available now and priced at \$1,390.

Rounding out the product rollout are two 10Base-FL transceivers, the ODS 637 and 636-C. The 637 dual-homing transceiver offers primary and secondary fiber-optic connections, meaning a PC can attach to two separate ports on a hub or two separate hubs. It is available now and costs \$1,140.

The 636-C can connect a 15-pin AUI on a PC to the fiber-optic port on a 10Base-FL bridge or router. It is also available now and priced at \$325. ■

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161 Worcester Road
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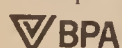
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Steep license fees slow rollout

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"If IBM wants us to help promote APPN and help make APPN a standard communications platform, it shouldn't be asking us for money," said Ray Chan, vice-president of business development for Network Software Associates, Inc., a Systems Network Architecture software developer in Laguna Hills, Calif. "IBM has to make it easier to get APPN products out the door as soon as possible, especially if it expects us to promote it and make it a standard that can fight the popularity of TCP/IP."

Is there another way?

According to Wayne Clark, manager of SNA development at Cisco Systems, Inc., many vendors, especially those involved in multiprotocol routing, are looking at ways to implement APPN features without licensing all APPN network node software from IBM.

"The rest of the industry is now locked out of the APPN market until the beta tests are done on the APPN developers code," Clark said. "The question is, can we do a partial implementation of APPN without licensing it and without stepping on any of IBM's APPN patents in the process."

Other conference attendees said IBM will publish its APPN patents by the end of the year so

"IBM has to make it easier to get APPN products out the door as soon as possible."

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vendors would know what was patented and what wasn't, but they expressed impatience at having to wait that long.

"We don't think the way IBM has been going about licensing APPN is a good idea because it could hold up the implementation of APPN," said Herb Rush, president of Brixton Systems, Inc., an SNA software developer in Cambridge, Mass. "It gives APPN a sense of not being open, and that's not what IBM wants."

Part of the licensing problem stems from the fact that the other half of APPN — the end node software code — is free. This has prompted some vendors and analysts to say IBM is trying to make it difficult to implement network nodes in non-IBM equipment, especially routers and cluster controllers.

Those boxes will be the heart and soul of IBM APPN communications environments, they said, and IBM does not want to make it too easy for non-IBM equipment to have the controlling influence that a network node implementation would have.

APPN network nodes are the brains of APPN in that they perform routing and directory functions. End nodes are APPN session end points, such as client or server nodes. They can automatically register themselves to the network node but cannot route APPN data.

IBM denies that it is trying to

"The question is, can we do a partial implementation of APPN without licensing it?"

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make life difficult for developers and that it is only trying to reclaim its investment in APPN network node code development. The company says it wants APPN to become the underlying transport facility for future multivendor nets.

According to Atul Kapoor, a principal at Kaptronix, Inc., a Hawthorn, N.J., consultancy, IBM is offering APPN developers a bargain because vendors would have to spend more than \$1 million to develop network node code or try to reverse-engineer it. "IBM did all the work and is promising future support," he said. "Plus, users would have no trust in APPN product developed without IBM APPN code."

Other conference attendees were quick to point out that IBM is bending over backwards to address developers' concerns by giving them access to previously confidential documentation and promising developers direct access to IBM engineers for help. They also said IBM might back away from its strong licensing stance if APPN struggles because of it.

Aside from the licensing issue, developers also told IBM they wanted to see a clearer view of how it intends to manage APPN nets. In March, IBM said it would manage APPN nets with the Common Management Information Protocol over the LU 6.2 protocol.

IBM revealed that the first implementations of APPN software next year would include support for the Simple Network Management Protocol so that APPN nodes could be managed by SNMP management systems. ■

CA, Novell team on LAN mgmt.

continued from page 1

Digital Equipment Corp. VAX users through its CA-Unicenter product. But NetWare administrators must rely on a broad range of products to get the functionality that will be provided through this integrated package.

"Unicenter is all these tools working together; it's really going to be the first integrated management solution for NetWare," said a source close to CA who requested anonymity.

Divergent approaches

It is not clear yet how the CA product will fit with Novell's highly touted, yet-to-be-released NetWare Management System (NMS). Novell could not be reached to comment on the pending announcement, but sources inside CA said the two products are very different.

"This doesn't attack the same problems NMS does," said one source, who explained that NMS is a platform on which third-party vendors will build network management applications. In contrast, Unicenter for NetWare is a single, integrated product that provides a complete set of management capabilities.

He would not say whether the information gathered through the CA product would be accessible through NMS or vice versa.

CA and Novell are expected to announce at CA's System Software Conference here a joint development and technology exchange agreement but are not expected to reveal a delivery schedule for Unicenter for NetWare. Sources said the product will be virtually identical to CA's Unicenter for Unix, which is in beta test now.

WIN/TCP to get modular facelift

continued from page 6

with Runtime and opt to exclude the developers' tool kit portion of the package.

"Then if they decided they needed the tool kit at a later date, they could purchase just that module," he said.

PathWay is also compatible with Digital Equipment Corp. TCP/IP network services, Langlais said.

"If users already have [DEC's TCP/IP Services for VMS], they can purchase PathWay Access and all of their applications will be able to run over DEC's transport," he explained.

In addition, the company has lowered the pricing for each of the components. Whereas WIN/TCP for VMS had been priced from \$1,000 to \$40,000, depending on the VAX platform,

As with the Unix product, Unicenter for NetWare will be administered from a graphical user interface on a local-area network-based workstation — probably a Microsoft Corp. Windows-based machine.

Like Unicenter for Unix, the NetWare system will offer the following functions: a management console, workload management, report distribution control, automated storage management, spool and problem management, performance monitoring, resource accounting, security control and system administration.

However, because it will be specifically designed to work in a NetWare environment, the product will support Novell's Inter-network Packet Exchange/Sequenced Packet Exchange (IPX/SPX) and will be tied in to NetWare's bindery services.

LAN portability

Some analysts questioned the value of migrating the CA product to a LAN.

"This is an indication that LAN environments have finally come of age," said Neal Hill, an analyst at Forrester Research, Inc., based in Cambridge, Mass.

"There certainly is a crying need for LAN-based environments to get high-end system and network management," he said. "But if this product is a straight port, I question its usability."

Hill explained that mainframe administrators tend to be more technically oriented than LAN administrators. To be successful, he said, Unicenter for NetWare would have to be rearchitected to be more accessible to technicians in a LAN environment. ■

PathWay Access together with Runtime is priced from \$1,000 to \$20,000. Pricing for the developers' tool kit has not been set, but Langlais said it will probably cost less than \$500.

Previously, the NFS client and server options, as well as the SMB server option, had been priced between \$1,000 and \$11,000, depending on VAX platform. Now, under PathWay, the NFS client portion costs from \$450 to \$9,500, and the NFS and SMB server modules are priced between \$350 and \$6,000.

The PathWay for VMS products will not be available until the fourth quarter of this year.

Langlais said users that sign up now for both PathWay Access and the company's support package will receive the current WIN/TCP product. Then, when PathWay Access is available in the fourth quarter, they will receive it at no additional cost. ■

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Please submit a 250- to 500-word abstract explaining how networking has helped your organization achieve its strategic goals. Has networking helped



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